DOCUMENT RESUME

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ABSTRACT

This second of fifteen sets of Adult Competency Education (ACE) Based Job Descriptions in the ACE kit contains job descriptions for Groundskeeper, Animal Keeper, Tire Repairperson, Muffler Installer, and Garage Mechanic. Each begins with a fact sheet that includes this information: occupational title, D.O.T. code, ACE number, career ladder, D.C.T. general educational developmental level, site(s) at which job can be observed, job requirements and job description (D.O.T.). The following pages list twenty to forty competencies (specific math and communicative activities) needed to function successfully in the occupation. Each competency is presented as (1) exact skill found to have been essential to the job during an on-site employee interview, (2) measurable instructional objective defining the skill (performance criterion, not job related), and (3) specific tasks with which to test a student's ability at the skill (the job-related performance criterion). (Instructional objectives match those in the ACE Taxonomy as indicated by a code identifying unit, item, and specific objective.) Skills that are prerequisite to the competencies are noted. (Additional job descriptions, kit manuals, and the project final report are also available in ERIC--see Note.) (YLB)

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Adult Competency Education kit

a project of the career preparation centers

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PART E

ACE COMPETENCY BASED JOB DESCRIPTIONS:

11 - Groundskeeper
12 - Animal Keeper
15 - Tire Repairperson
16 - Muffler Installer
17 - Garage Mechanic

BASIC SKILLS IN SPEAKING, MATH, AND READING FOR EMPLOYMENT

Products and Processes
Developed by the
Adult Competency Education Project
Director, Joe Cooney

CE 016 823

ADULT COMPETENCY EDUCATION KIT TABLE OF CONTENTS

ACE Final Report (CE 016 818)

PART A (CE 016 819)
Introduction to ACE Kit 1
Table of Contents 6
Flowchart of ACE Student Process 7
ACE Counseling Manual 9

PART B (CE 016 820)
ACE Job Analysis and Instruction Manual 99
Interview Form 169

PART C (CE 016 821)
Taxonomy of Instructional Objectives 181
How to Develop Instructional Materials 239
Bibliography 241
Student Competency Profiles 265
Student Assignment Sheets 269
Matrix of Academic Skills 317
ACE Slide/Tape Script 321

PART D (CE 016 822)
ACE COMPETENCY BASED JOB DESCRIPTIONS:
#2 - Child Care Attendant 333
#4 - Guard 349
#8 - Medical Assistant 365

PART E (CE 016 823)
#11 - Groundskeeper 381
#12 - Animal Keeper 405
#15 - Tire Repairperson 411
#16 - Muffler Installer 423
#17 - Garage Mechanic 439

PART F (CE 016 824)
#20 - Body Fender Mechanic 469
#21 - New Car Get-Ready Person 495

PART G (CE 016 825)
#22 - Refrigerator Mechanic 515
#24 - Motorcycle Repairperson 559

PART H (CE 016 826)
#25 - Household Appliance Mechanic 583
#26 - Lineworker 611
#27 - Painter Helper, Spray 633
#28 - Painter, Brush 641
#29 - Carpenter Apprentice 645

PART I (CE 016 827)
#30 - Roofer Apprentice 653
#31 - Pipefitter 669
#32 - Medical Supply Clerk 675
#33 - Stock Clerk 681
#35 - Warehouseman (Laborer, Stores) 711

PART J (CE 016 828)
Sales Core Job Description 723
#36 - Sales, Automotive Parts 737
(see also Sales Core Job Description 723)
#37 - Sales Clerk 757
(see also Sales Core Job Description 723)
#38 - Salesperson, Garden & Housewares 771
(see also Sales Core Job Description 723)
#39 - Salesperson, Women's Garments 785

PART K (CE 016 829)
#40 - Salesperson, Automobile 801
(see also Sales Core Job Description 723)
#41 - Salesperson, Men's Wear 819
(see also Sales Core Job Description 723)
#42 - Waiter/Waitress 833
#45 - Janitor 851
#46 - Porter 859
#48 - Pressing Machine Operator 871

PART L (CE 016 830)
#52 - Maid 879
#54 - Ticket Agent 899
#55 - Cosmetologist 905
#57 - Counterperson 923
#58 - Cook Helper 927
#59 - Kitchen Helper 943

PART M (CE 016 831)
#60 - Food Assembler 955
#61 - Injection Molder - Machine Operator 967
#62 - Data Entry Typist 985
#63 - Institutional Cook 1001
Office Core Job Description 1025
#64 - Clerk Typist 1041
(see also Office Core Job Description)

PART N (CE 016 832)
#65 - Typist I 1049
(see also Office Core Job Descrip. 1025)
#67 - Grocery Checker 1057
#68 - File Clerk 1065
#69 - Receptionist 1087
(see also Office Core Job Descrip. 1025)
#70 - Bank Teller 1091
#71 - Clerk, General Office 1105
(see also Office Core Job Descrip. 1025)

PART O (CE 016 833)
#72 - Ward Clerk 1111
#73 - Account Clerk 1141
#74 - Mail Handler (Messenger) 1167
#75 - Payroll Clerk 1181

PART P (CE 016 834)
#77 - Secretary 1199
(see also Office Core Job Descrip. 1025)
#78 - Keypunch Operator 1203
Assembly Worker Core Job Description 1213
#82 - Electronics Assembler 1223
(see also Assembly Worker Core 1213)
#83 - Printed Circuit Assembler 1237
(see also Assembly Worker Core 1213)
#84 - Micro Electronics Assembler 1247
(see also Assembly Worker Core 1213)
#85 - Chassis Assembler 1255
(see also Assembly Worker Core 1213)
#87 - Machinist Apprentice 1263

PART Q (CE 016 835)
#91 - Meat Cutter 1287

#92 - Shipping Clerk 1303
#93 - Long Haul Truck Driver 1325
#94 - Truck Driver - Light 1351

PART R (CE 016 836)

#95 - Bus Driver 1371
#98 - General Loader 1397
#99 - Forklift Operator 1425
#100 - Material Handler 1439

NOTE

JOB DESCRIPTION NUMBERS. ACE investigated 100 jobs and developed 68 of them into Competency Based Job Descriptions. The above 68 are numbered according to the original listing. The gaps are in the numbering only. This is a complete list of the ACE Competency Based Job Descriptions.

A.C.E. COMPETENCY BASED JOB DESCRIPTION 11

OCCUPATIONAL TITLE GROUNDSKEEPER

COMPETENCY BASED JOB DESCRIPTION FACT SHEET

OCCUPATIONAL TITLE: GROUNDSKEEPER

DOT CODE: 407.884 (4th Ed: 406.684-014)

ACE Number: 11

CAREER LADDER

FIRST LEVEL: (Entry Level)

Grounds Maintenance
Turf Maintenance
Gardner's Helper

SECOND LEVEL: (On-the-job or Vocational Training)

Equipment Operator
Landscape Maintenance
Nursery Maintenance

THIRD LEVEL: (On-the-job or College Training)

Lead Man
Foreman, Maintenance
Landscape Contractor

General Education Level: 2

JOB SITE WHERE THE JOB CAN BE OBSERVED

Sequoia Union High School
480 James Avenue
Redwood City, CA

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The activity which is the subject of this report was supported in whole or in part by the U.S. Office of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U.S. Office of Education, and no official endorsement by the U.S. Office of Education should be inferred.

Number of Annual Jobs in San Mateo County 117. The number of jobs in San Mateo County is based upon the San Francisco-Oakland SMSA, U. S. Census Manpower projections and the quarterly employment security applicant record system reports on local San Mateo County Employment Development Department job opening activity.

DOT Job Description: Maintains grounds of industrial, commercial, or public property, performing combination of following tasks: Cuts lawns, using hand mower or power mower. Trims and edges around walks, flower beds, and walls, using clippers and edging tools. Prunes shrubs and trees to shape and improve growth, using shears. Sprays lawn, shrubs, and trees with fertilizer or insecticide. Rakes and burns leaves and cleans or sweeps up litter, using spiked stick or broom. Shovels snow from walks and driveways. Plants grass, flowers, trees, and shrubs. Waters lawn and shrubs during dry periods, using hose or by activating fixed or portable sprinkler system. Repairs fences, gates, walls, and walks, using carpentry and masonry tools. Paints fences and outbuildings. Cleans out drainage ditches and culverts, using shovel and rake. Depending on size and nature of employing establishment, may operate tractor equipped with attachments, such as mowers, lime or fertilizer spreaders, and lawn roller. May be known according to specific task performed as GRASS CUTTER; HEDGE-AND-SHRUB CUTTER, LEAF RAKER; RIDING-MOWER OPERATOR.

THE ACADEMIC REQUIREMENTS FOR THE JOB OF GROUNDSKEEPER

Below are listed first in general terms and then in specific competencies the math and communication activities which a person must typically be able to carry out to function successfully as a groundskeeper.

The right hand column lists the exact competencies found to have been essential to the job in our on-site employee interview. This column also notes the skills which are prerequisite to those competencies.

The middle column * states the skill in more general language. The controlled language of this column permits comparison of skills between occupations.

* The items in the middle column have been abstracted from an abbreviated version of the taxonomy of generic skills developed by Kawula, W. and Smith, A. De W., Generic Skills Handbook of Occupational Information, Training Research and Development Station, Prince Albert, Saskatchewan, 1975.

1A.2 Prerequisite to 3E.1 Identify place value of digits in a given whole number with up to 7 digits.

1A.3 Prerequisite to 3E.1 Read a given whole number less than 10 million and write its name in words.

1A.4 Prerequisite to 3E.2 Write a whole number less than 10 million given the word name of the number.

1A.5 The groundskeeper must be able to estimate distances by pacing them off.

To accomplish this task, the student must be able to count a set of up to 100 objects and write the total.

To demonstrate the ability to perform this task, the student will count the number of steps from one spot designated by the instructor to another spot.

1B.1 Prerequisite to 1B.2 Perform additions of whole numbers given instructions such as:

What is the total of 8 and 5?
8 plus 5 is ____.
Find the sum of 8 and 5.
Add 8 and 5.

$8 + 5 = ____.$

$$\begin{array}{r} 8 \\ +\ 5 \\ \hline \end{array}$$

1B.2 The groundskeeper must be able to keep track of the number of flats of flowers in shipments.

To accomplish this task, the student must be able to add whole numbers.

To demonstrate the ability to perform this task, the student will perform the following addition problems:

a.	b.	c.	d.
36	144	216	1,048
36	72	166	512
48	33	375	3,781

KEY: a. 120, b. 249, c. 757, d. 5,351.

1B.3 Prerequisite to 1B.5 Perform subtraction of whole numbers given instructions such as:

8 minus 5 is ___.
Subtract 5 from 8.
Find the difference of 8 and 5.
8 - 5 = ___.

If you had 8 and gave away 5, you would have ___.

$$\begin{array}{r} 8 \\ -5 \\ \hline \end{array}$$

1B.4 Prerequisite to 1B.5 Find the difference of two 1-5 digit numbers including cases where borrowing is required.

1B.5 The groundskeeper must be able to keep track of materials used.

To accomplish this task, the student must be able to subtract whole numbers.

To demonstrate the ability to perform this task, the student will determine that, if he had started with 1,600 pounds of fertilizer and used 975 pounds, he would have 625 pounds left.

1C.1 Prerequisite to 1C.2 Perform multiplication of whole numbers given instructions such as:

6 times 2 is ____.
Three two's are ____.
The product of 6 and 2 is ____.

$6 \times 2 = ____.$

$$\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$$

1C.2 The groundskeeper must be able to figure out areas in order to have the proper materials on hand.

To accomplish this task, the student must be able to be able to multiply whole numbers.

To demonstrate the ability to perform this task, the student will solve the following problems:

a. $\begin{array}{r} 100 \\ \times 12 \\ \hline \end{array}$ b. $\begin{array}{r} 365 \\ \times 15 \\ \hline \end{array}$ c. $\begin{array}{r} 1{,}207 \\ \times 33 \\ \hline \end{array}$ d. $\begin{array}{r} 87 \\ \times 38 \\ \hline \end{array}$

KEY: a. 1,200; b. 4,380; c. 39,831; d. 3,306.

1C.3 Prerequisite to 2A.5 Perform division of two simple whole numbers (no remainder) given instructions such as:

2 divided by 6 is ___.
2 into 6 goes ____ times.
The quotient of 6 divided by 2 is _____.

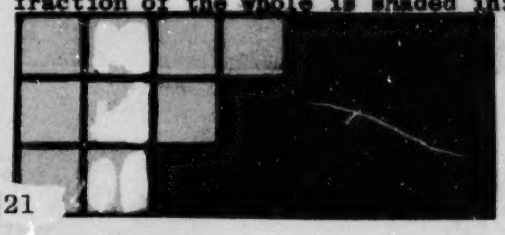
$6 - 2 =$ ____.
$2\overline{)6} =$ ____.
$\frac{6}{2} =$ ___.

2A.1 The groundskeeper must be able to estimate the number of plants in a flat.

To accomplish this task, the student must be able to recognize fractional parts of a whole.

To demonstrate the ability to perform this task, the student will examine the diagrams below and determine what fraction of the whole is shaded in:

a. 3/8



b. 12/21

2A.2 Prerequisite to 2A.5 Reduce a fraction to its simplest form (lowest terms).

2A.3 Prerequisite to 2A.5 Change improper fractions to mixed numbers and mixed numbers to improper fractions.

2A.4 Prerequisite to 2A.5 Write equivalent fractions for a given fraction given a new numerator and denominator.

2A.5 The groundskeeper must be able to use the proper sized tools to make minor mechanical repairs.

To accomplish this task, the student must be able to arrange a set of fractions according to their sizes.

To demonstrate the ability to perform this task, the student will place the following fractions in ascending order:

1/2; 5/8; 3/16; 3/4; 7/32.

2A.6 Prerequisite to 5C.3 — Write what fractional part one number is of another in simplest form.

2C.1 Prerequisite to 2C.2 — Calculate the product in simplest form of:
a. a common fraction and a whole number,
b. two common fractions.

2C.2 The groundskeeper must be able to calculate the area of triangular spaces and also must be able to work ratios.

To accomplish this task, the student must be able to multiply whole numbers or mixed numbers by fractions.

To demonstrate the ability to perform this task, the student will carry out the calculations indicated below:

a. $100 \times \frac{3}{4}$ b. $4\frac{7}{8} \times \frac{2}{3}$ c. $6\frac{3}{4} \times 1\frac{1}{2}$

Key: a. 75, b. $3\frac{1}{4}$, c. $10\frac{1}{8}$

3A.1 Prerequisite to 3E.1 — Read a given 1-4 place decimal fraction and write its name in words.

3A.2 Prerequisite to 3E.2 — Write a 1-4 place decimal fraction given the word name of the number.

3A.3 The groundskeeper must be able to use the correct sizes of tools for repairs on machinery.

To accomplish this task, the student will examine the decimal fractions below and put them into descending orders:

.375 .625 1.0 .75 .125 .5 .525

3B.1 Prerequisite to 3E.3 — Calculate the sum of a set of decimal fractions.

3B.2 Prerequisite to 3E.4 — Calculate the difference of two decimal fractions.

3E.1 The groundskeeper must sometimes be able to write out requisitions and work orders.

To accomplish this task, the student must be able to write the word name of an amount of dollars and cents given the number.

To demonstrate the ability to perform this task, the student will correctly write out the word names of the following amounts:

$ 25.00
$ 1.73
$ 36.27
$175.89

3E.2 The groundskeeper must be able to phone orders for plants and materials.

To accomplish this task, the student must be able to write the amount given the word name of a dollars and cents figure.

To demonstrate the ability to perform this task, the student will list the correct dollar and cents value for each of the following:

One dollar and ten cents
Fourteen dollars
Eighty-nine cents
One hundred seventy-three dollars and forty-seven cents.

3E.3 The groundskeeper must be able to verify his paycheck.

To accomplish this task, the student must be able to add colums of dollars and cents.

To demonstrate the ability to perform this task, the student will sum the following columns:

a.	b.	c.
$ 75.25	$280.87	$652.34
140.06	83.91	92.27
37.29	2.84	65.66

Key: a. $252.60, b. $367.62, c. $810.27

3E.4 The groundskeeper must be able to check the deductions on his paycheck.

To accomplish this task, the student must be able to subtract dollars and cents values.

To demonstrate the ability to perform this task, the student will solve the following problems correctly:

a.	b.	c.
$857.26	$237.24	$142.68
-49.97	-81.36	-32.45

KEY: a. $807.29, b. $155.88, c. $110.23

5C.1 Prerequisite to 5C.3 Identify comparisons of two numbers in forms such as a:b, "a is to b," or "a parts to b parts," as ratios.

5C.2 Prerequisite to 5C.3 Write a ratio given a description of two numbers or items, one of which must be determined by addition or subtracting the numbers in a given ratio.

5C.3 The groundskeeper must be able to use the correct mixture of soils to ensure the best growth results.

To accomplish this task, the student must be able to write ratios given a description of 2 numbers or items, one of which must be determined by addition or subtracting numbers in a given ratio.

To demonstrate the ability to perform this task, the student will determine that if a ratio of 5 to 6 is required, and the ratio is now 2:3, 3 must be added to both the top and the bottom.

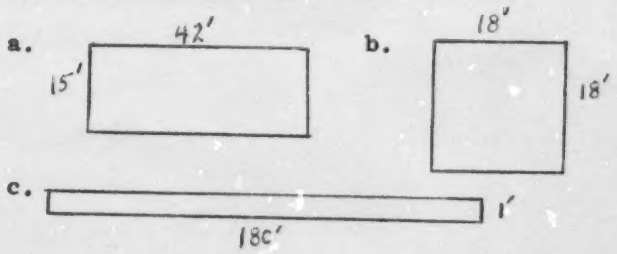
6A.1 Prerequisite to 6A.6 Identify area as the measurement of the surface of a figure and state units used (sq. in., sq. ft., sq. yd., sq. mi.).

6A.2 Prerequisite to 6A.3 Calculate the area of a given square.

6A.3 The groundskeeper must be able to estimate the amount of paint needed for a particular job.

To accomplish this task, the student must be able to determine the area of rectangles.

To demonstrate the ability to perform this task, the student will determine the areas of the figures below:



Key: a. 630 sq. ft., b. 324 sq. ft.,
c. 180 sq. ft.

6A.4 Prerequisite to 6A.6 Calculate the area of a given triangle.

6A.5 Prerequisite to 6A.6 Calculate the area of a given circle.

6A.6 The groundskeeper must be able to figure out the amount of lawn needed to fill a particular space.

To accomplish this task, the student must be able to solve a practical problem involving areas.

To demonstrate the ability to perform this task, the student will determine that a circular plot, 30 feet across, would cover an area of 706.5 sq. ft.

6A.7 The groundskeeper must be able to work efficiently in order to prevent going back to the shop to get more materials.

To accomplish this task, the student must be able to estimate areas to within 25% of their actual size.

To demonstrate the ability to perform this task, the student will estimate the area of several tables or floors indicated by the instructor.

6D.1 The groundskeeper must be able to determine the proper amounts of various sprays needed for a job.

To accomplish this task, the student must be able to add and subtract units of liquid measure.

To demonstrate the ability to perform this task, the student will perform the operations indicated below:

a. 3 gallons, 2 quarts + 1 gallon, 3 quarts

b. 2 gallons -1 quart, 1 pint

Key: a. 5 gallons, 1 quart b. 2 quarts, 1 pint

6D.2 The groundskeeper must be able to use weed killer and other chemical sprays.

To accomplish this task, the student must be able to measure liquid content of a container.

To demonstrate the ability to perform this task, the student will measure out three amounts of liquid as directed by the instructor.

6E.3 The groundskeeper must be able to safely lift sacks of fertilizer, boxes of debris or large stones.

To accomplish this task, the student must be able to estimate the weight of an object or whether it is safe to lift by oneself.

To demonstrate the ability to perform this task, the student will, given several objects around the room, determine whether he could lift them safely.

6F.1 The groundskeeper must be able to determine the dimensions of various spaces.

To accomplish this task, the student must be able to add and subtract units of distance.

To demonstrate the ability to perform this task, the student will correctly solve the following problems:

a. 76 yards 2 feet 8 inches
+ 4 yards 10 inches

b. 20 yards 8 inches
- 6 yards 2 feet 9 inches

Key: a. 81 yards, 6 inches b. 13 yards, 11 inches

6F.2 The groundskeeper must be able to determine the exact distances between lines on a field.

To accomplish this task, the student must be able to measure accurately a given distance or dimension.

To demonstrate the ability to perform this task, the student will, using a ruler or tape measure, correctly measure various distances or dimensions of objects suggested by the instructor.

6G.1 The groundskeeper must be able to figure out his hours at each job and his total daily hours.

To accomplish this task, the student must be able to add and subtract 12-hour clock times.

To demonstrate the ability to perform this task, the student will determine the amount of time elapsed in each of the following:

a. 12:15 b. 5:10
- 8:00 -1:45

Key: a. 4 hours 15 minutes, b. 3 hours 25 minutes

6G.2 The groundskeeper must be able to account for his time throughout the day.

To accomplish this task, the student must be able to measure the actual duration of time to perform routine functions.

To demonstrate the ability to perform this task, the student will accurately measure the time required to get to school from his home.

8A.3 Prerequisite to 8A.5 Identify a series of consecutive whole numbers or multiples of whole numbers with or without equal subdivisions between numbers on a measuring device, as a graduated scale.

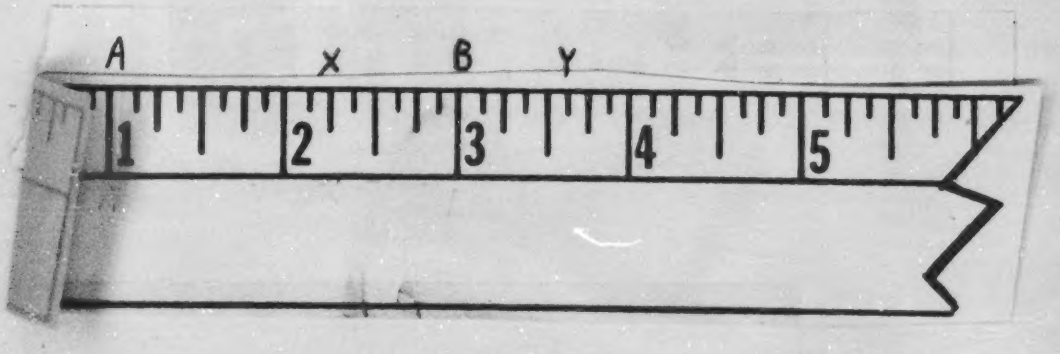
8A.4 Prerequisite to 8A.5 Write the size of the interval between:

a. numerals on a graduated scale
b. subdivisions on a graduated scale

8A.5 The groundskeeper must be able to use measuring devices such as tape measures, rulers, scales.

To accomplish this task, the student must be able to read and understand a graduated scale.

To demonstrate the ability to perform this task, the student will examine the scale below and determine that from point A to B is 2 inches, and from point X to point Y is 1 $\frac{3}{8}$ inches.



12D.1 **The groundskeeper must be able to repair tools such as lawnmowers and other hand tools.**

To accomplish this task, the student must be able to read and understand assembly drawings

To demonstrate the ability to perform this task, the student will examine the drawing below and explain to the instructor the order in which the parts would be assembled.

13A.1 Prerequisite to 15A.3 Given letters of the alphabet in manuscript form and in random order, read each letter and pronounce each letter correctly.

15A.1 Prerequisite to 15A.3 Read a list of 50 words from a series of commonly used terms (e.g., from the Dolch List).

15A.2 **The groundskeeper must be able to use various sprays and liquids safely.**

To accomplish this task, the student must be able to read and understand labels of frequently used products.

To demonstrate the ability to perform this task, the student will read the label below and explain to the instructor the possible hazards and drawbacks of the product:

DDT
Well-known insecticide DDT is synthetic organic product, made up of elements chlorine, hydrogen, and carbon (dichloro-diphenyl-trichloroethane). Effectiveness due to contact and stomach poisoning. Kills a very wide variety of insects and leaves a residue that retains its killing power over a long period of time. Has two weaknesses: (1) it does not affect most aphis, scale insects, mites, and red-spiders: moreover, the latter two may actually increase as a result of its use because DDT kills off their natural enemies: (2) strains of certain insects, such as the housefly, have become resistant to it.
There is still much to be learned about its long-range or cumulative poisoning effect on humans and animals: moreover it is definitely harmful to certain forms of of wildlife, including birds and fish. DO NOT USE INDISCRIMINATELY.

15A.3 The groundskeeper must be able to communicate with co-workers or with a supervisor.

To accomplish this task, the student must be able to understand and use orally words common to groundskeeping.

To demonstrate the ability to perform this task, the student will correctly match the following words with their definitions:

1. aerial photo	A. a device to spray lawns or plants with water
2. poison	B. a business which grows plants for sale
3. sprinkler	C. a shallow box full of plants
4. pruning	D. a subdivision of the plant kingdom
5. nursery	E. ground covering to insulate the soil - consisting of roofing paper, sawdust, peat moss, straw, etc.
6. flat	F. cutting a plant to control the way it grows
7. loam	G. a substance which kills plants or animals
8. phylum	H. tool for weeding, scraping, hilling and making seed drills
9. fertilizer	I. manure or chemicals put into soil to aid plant growth
10. spade	J. a big, deep hole in the ground
11. mulch	K. a picture taken from an airplane
12. warren hoe	L. a square-bladed shovel for digging
13. sump	M. rich soil of clay, sand, and organic matter

KEY: 1 K, 2 G, 3 A, 4 F, 5 B, 6 C, 7 M, 8 D, 9 I, 10 L, 11 E, 12 H, 13 J.

15B.1 The groundskeeper must be able to work safely on the job.

To accomplish this task, the student must be able to understand common functional signs.

To demonstrate the ability to perform this task, the student will read the signs below and explain their meanings to the instructor:

16A.1 Prerequisite to 16A.4 Identify a form as a standardized printed document with blank spaces for recording certain needed information.

16A.2 Prerequisite to 16A.4 Interpret terminology and abbreviations frequently found in forms.

16A.3 Prerequisite to 16A.4 Identify various kinds of forms by stating the kind of information to be recorded.

16A.4 The groundskeeper must be able to fill out time sheets.

To accomplish this task, the student must be able to understand and answer questions about the data on forms.

To demonstrate the ability to perform this task, the student will examine 11-A and determine that Tobias Smollet

worked 8 hours and 35 minutes on December 29th paving a road at Windy Hi and that the total hours worked from December 16th to January 15th was 170 hours and 10 minutes.

16C.1 Prerequisite to 22D.1 — Given notes, letters or memos, be able to identify:
a. the author;
b. the recipient;
c. the activities required of the recipient;
and answer factual and interpretive questions from the contents.

16D.1 Prerequisite to 16D.5 — Identify a manual as a handbook of instructions and/or information related to one topic, and give an example of a manual.

16D.2 Prerequisite to 16D.5 — Identify the particular kind of information or directions included in a given manual, using the title, table of contents, and/or index as guide.

16D.3 Prerequisite to 16D.5 — Identify the parts of a given manual which apply to a given situation using the table of contents and/or index as guide.

16D.4 The groundskeeper must be able to make minor repairs to lawnmowers and other simple machines.

To accomplish this task, the student must be able to locate parts in a parts manual and answer factual questions based on the information given.

To demonstrate the ability to perform this task, the student will turn to 11-B and determine the names and reference numbers for parts 4 and 11 in the picture.

16D.5 The groundskeeper must be able to properly tend numerous varieties of plants.

To accomplish this task, the student must be able to use a manual to discover information about problems.

To demonstrate the ability to perform this task, the student will take a copy of the Sunset Western Garden

Book or a similar manual and locate those sections of the book dealing with the following: how to prune shrubs; how to get rid of mites; the landscaping uses of Dwarf Bamboo; and the common name of Tsuga Heterophylla.

17A.1 Prerequisite to 17A.3 Select appropriate titles for paragraphs, given a list of titles.

17A.3 The groundskeeper must be able to take proper care of various plants.

To accomplish this task, the student must be able to read information and understand the main ideas.

To demonstrate the ability to perform this task, the student will read the paragraph below and determine that the main idea is to define ground cover.

Substitute any paragraph which states a main idea.

17A.4 Prerequisite to 17A.5 Identify statements as being true or false after reading a given selection.

17A.5 The groundskeeper must be able to make the best use of plants and their environments.

To accomplish this task, the student must be able to read materials which will give factual information useful in preparing the grounds.

To demonstrate the ability to perform this task, the student will read the following paragraph and determine what the two varieties of Anemone are; what the common names are; when they should be planted; what type of sun they prefer; and what their most effective use is:

Substitute a selection from

a gardener's manual

...1½ in.

A. coronaria. Poppy-Flowered Anemone. The com...

CULTURE: *A. coronaria* prefers sun; *A. apennina* slight shade. Plant bulbs in October to November. In cold sec-

cellent cut flowers.

17A.7 Prerequisite to 19A.15 Do an exercise that requires recall of given instructions or information.

17A.13 Prequisite to 19A.15 Given a set of written instructions involving activities to be performed by a number of people, and the particular role, prepare a list and sequence of activ ties to be performed.

19A.1 Prequisite to 15A.3 Identify the correct meanings of words that sound similar but are different in meaning.

19A.4 Prerequisite to 17A.3 Identify the main idea from a given speech which has just one main idea.

19A.15 The groundskeeper must be able to perform tasks at the worksite.

To accomplish this task, the student must be able to follow a set of oral instructions.

To demonstrate the ability to perform this task, the student will listen to the following instructions and then follow them:

Measure a table in the room and then "plant" one paper clip for every square foot on the table top.

21A.3 The groundskeeper must be able to fill out various time sheets and other forms correctly.

To accomplish this task, the student must be able to write the date using correct punctuation and capitalization.

To demonstrate the ability to perform this task, the student will correctly write today's date and the student's birthdate for the instructor.

22A.1 Prerequisite to 22B.2 Given simple data in the form of words and figures, write phrases on forms which are legible and which convey the desired information.

22B.1 Prerequisite to 22B.2 Given simple data in the form of words and figures, write complete sentences on forms which are legible and which convey the required information.

22B.2 The groundskeeper must be able to get a job.

To accomplish this task, the student must be able to fill out a job application correctly.

To demonstrate the ability to perform this task, the student will accurately fill out 11-C.

22D.1 The groundskeeper must be able to remember instructions given orally in the field.

To accomplish this task, the student must be able to write short notes conveying information about who, what, why, where, when and how.

To demonstrate the ability to perform this task, the student will write a note, given the following information orally:

"After you're through with the pruning, go over to More Science High and line the football field with lime before tonight's game at 7:00.

25C.1 Prerequisite to 25C.5 — Write the telephone number of a given person or organization using the alphabetical listing section of a telephone directory as reference.

25C.2 Prerequisite to 25C.5 — Identify local call, person-to-person long distance call, station-to-station long distance call, collect call, and direct distance dial call given a description of each.

25C.3 Prerequisite to 25C.5 — List the steps in using the telephone to:
a. get the time of day;
b. get a number of a person or organization for a local or long distance call.
c. make a person-to-person long distance call;
d. make a station-to-station long distance call through the operator;
e. make a collect call;
f. make a direct distance dial call to a point with the same and different area codes;
g. report that a telephone is not operating properly;
h. report an incorrectly dialed direct distance dial call.

25C.4 Prerequisite to 25C.5 — List the names and telephone numbers of businesses dealing in a given article or service using the Yellow Pages as reference.

25C.5 The groundskeeper must be able to make emergency calls because of accidents.

To accomplish this task, the student must be able to write the address of a given person or organization given the telephone directory.

To demonstrate the ability to perform this task, the student will find the local police number, an ambulance service, and the superintendent of school's address and phone number in a local telephone directory.

25C.6 The groundskeeper must be able to get clarification of instructions from superiors.

To accomplish this task, the student must be able to use a telephone.

To demonstrate the ability to perform this task, the student will practice making and receiving telephone calls at the instructor's discretion.

MULTNOMAH UNION HIGH SCHOOL DISTRICT

402 11-A TIME SHEET

Employee Number 123765

Name Tobias Smollet (Print or Type)

Date 12/9/77

Location Raging Woods (School or District Dept.)

Months Included November and December 1977

Certificated ☐ Classified ☒ Student ☐ Temporary ☐

Substitute ☐ Compensatory Time ☐ Part Time ☐

To be completed by employee

DATE	Please Give Complete Description of Work, Program, Etc.	Time Hr.	Time Min.	Rate	CHARGE TO BUDGET CODE Location	Pgm.	Dept.	Acct.
16th	Landscaping	8		4.80	Squall Hi	RSVP	JSP	1475
17th	Do	8	15		Do			
18th	Do	7	40		Do			
19th	Do	8	5		Do			
20th								
21st	Weekend							
22nd	Lining Field w/Lime	8			Squall Hi			
23rd	Do	8			Gale Hi			
24th	Landscaping	8			Do			
25th	Do	7	15		Do			
26th	Rained Out	—	—					
27th								
28th	Weekend							
29th	Paving Road	8	35		Windy Hi			
30th	Do	9	15		Do			
31st	Do	9			Do			
1st	Do	8	25		Do			
2nd	Trim Trees	8	5		Gale Hi			
3rd								
4th	Weekend							
5th	Planting Flower Beds	8			Squall Hi			
6th	Do	7	45		Do			
7th	Mow Lawns	7	50		Do			
8th	Landscaping	8	05		Windy Hi			
9th	Do	7	55		Do			
10th								
11th	Weekend							
12th	Rained Out	—	—					
13th	Landscaping	8			Squall Hi			
14th	Do	8			Do			
15th	Do	8			Do			

TOTAL TIME 170 hr. / 10 min.

Please be sure all information is correctly shown before signing.

Signature Toby Smollet (Employee)

Submitted by: H. P. Lovecraft (Dpt. Head)

Approved by: Isaac Babel (Principal)

Payment Authorized Elias Howe (Dist. Admin.)

PLEASE SUMMARIZE BELOW

Charge to BUDGET CODE NUMBER Location	Prgm.	Dept.	Acct. Class.	Rate	T H
Squall Hi	RSVP	JSP	14-A	4.80	23
Gale Hi	RSVP	JSP	14-B	4.80	14
Windy Hi	RSVP	JSP	14-C	4.80	79

SUBSTITUTE A PAGE FROM PARTS MANUAL

11-C

EMPLOYMENT APPLICATION

1. **NAME** (Last) (First) (Middle)

2. **ADDRESS** (Number, Street, City, Zip Code)

3. **TELEPHONES**
Home _____
Business _____

Length of Time at Current Address | Time at Previous Address

QUESTIONS 4 THROUGH 10 MUST BE ANSWERED *YES* OR *NO*

	YES	NO
4. Do you have a valid California Drivers License?		
5. Do you claim Veteran's Preference? If *Yes*, complete the following and submit copy of DD214 with application. (Veteran's Preference is applicable to entry level positions, only.) SERVICE DATES From _____ To _____ **NOTE:** To receive credit you must have served at least 30 days in the United States Armed Forces in time of war, or national emergency declared by the President of the United States of America, and have been discharged or released under conditions other than dishonorable.		
6. May we contact your present employer as to your qualifications, character and ability?		
7. Have you ever been dismissed from employment or resigned to avoid dismissal for misconduct or unsatisfactory service? (If *Yes*, give details in Question 11)		
8. Have you ever received Workmen's Compensation? (If *Yes*, describe in Question 11)		
9. Have you any disease, nervous disorder, physical disability or infirmity? (If *Yes*, describe in Question 11)		
10. Have you been hospitalized for any reason in the past five years? (If *Yes*, describe in Question 11)		

11 Explanations to questions 7 through 10 (Use additional sheets of paper, if necessary.)

12 **EDUCATIONAL RECORD**

Circle Highest Grade Completed: 6 7 8 9 10 11 12 | Name and Location of Last Elementary or High School | Graduated? Yes ☐ No ☐

Name and Location of College or University | Major | Credits or Degree

List any related business, trade, special training (give location and dates), estimated typing and shorthand speeds, San Mateo County typing and/or shorthand certificates (give certificate number and date); location of college placement file, and other related information as applicable.

13. **EMPLOYMENT INFORMATION** (Begin with your present employment and work back. Account for all time during the past ten years, including periods of unemployment. In addition, please describe any other related work experience, including volunteer work. Use additional sheets if more space is required.)

Present or Last Position

Employer _____
Address _____
Supervisor's Name & Title _____ Phone _____
Your Title _____
Duties _____

From _____ mo. _____ year
To _____ mo. _____ year
Total _____ years _____ months
Full Time ☐ Part Time ☐
Last Salary _____
Reason for leaving _____

Employer _____
Address _____
Supervisor's Name & Title _____ Phone _____
Your Title _____
Duties _____

From _____ mo. _____ year
To _____ mo. _____ year
Total _____ years _____ months
Full Time ☐ Part Time ☐
Last Salary _____

14. **PERSONAL REFERENCES - GIVE THREE** (Do not include previous employers or relatives.)

NAME	ADDRESS	PHONE NUMBER

A.C.E. COMPETENCY BASED JOB DESCRIPTION

OCCUPATIONAL TITLE: ANIMAL KEEPER

D.O.T. CODE: 358.874 (4th. Ed.: 410.674-010

ACE Number: 12

FACT SHEET

CAREER LADDER:

FIRST LEVEL:
- Animal Keeper
- Stableman
- Dog Groomer
- Dog Pound Attendant
- Pet Shop Attendant
- Kennelman

SECOND LEVEL:
- Aquarist
- Laboratory Assistant

THIRD LEVEL:
- Laboratory Technician
- Animal Technician for Veterinarian

GED LEVEL: 3

Site where the job can be observed:
Coyote Point Animal Shelter
Peninsula Humane Society
1225 Coyote Point drive
San Mateo, CA 94401

Number of Annual Jobs in San Mateo County: 52 This number is based upon the San Francisco-Oakland SMSA, U.S. Census Manpower projections and the quarterly employment security application record system reports on local San Mateo County Employment Development Department job opening activity.

D.O.T. JOB DESCRIPTION: Feeds, waters and cleans quarters of animals in zoo, circus or menageries. Observes and reports sick animals and birds. Treats minor injuries or ailments. Transfers animals or birds from one cage or pen to another. May prepare food. May bathe and groom animals. May answer questions of visitors concerning animals or birds. May be designated according to animal cared for.

THE ACADEMIC REQUIREMENTS FOR THE JOB OF ANIMAL KEEPER

Below are listed, first in general terms and then in specific competencies, the math and communication activities which a person must typically be able to carry out to function successfully as an animal keeper.

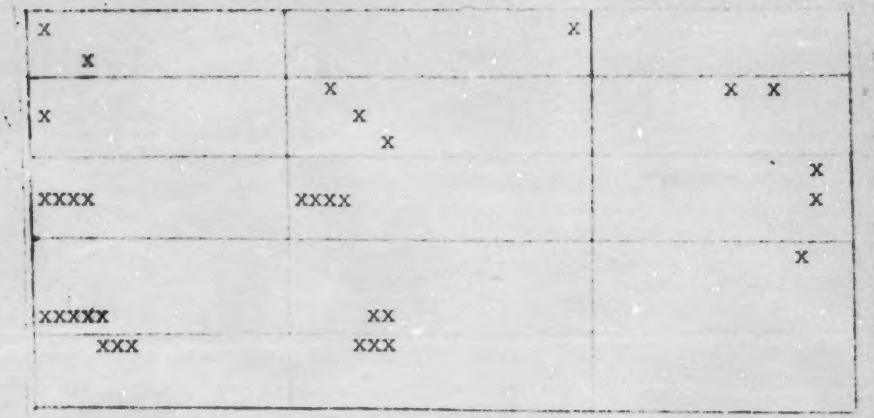
The right hand column lists the exact competencies found to have been essential to the job in our on-site employee interview. This column also notes the skills which are prerequisite to those competencies.

The left hand column states the skill in more general language. The controlled language of this column permits comparison of skills between occupations.

The items in the left hand column have been abstracted from an abbreviated version of the taxonomy of generic skills developed by Kawula, W., and Smith, A. De W., **Generic Skills Handbook of Occupational Information**, Training Research and Development Station, Prince Albert, Saskatchewan, 1975.

These materials were developed pursuant to a grant from HEW, OE under PL93-380, Section 309. This does not necessarily imply endorsement of the content.

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
1A.1 Given a series of numbers in numeral form (e.g., 10, 20, 30), be able to copy series in handwritten form with 100% accuracy.	An animal keeper must be able to work with numbered forms (pick-up forms, quarantine forms, protective custody forms) in which each number refers to an animal at the shelter. To accomplish this task, the student must be able to copy five digit numbers correctly for record keeping. **To demonstrate the ability to perform this task, the student will correctly copy a list of fifteen five digit numbers.**
1A.5 Count a set of up to 100 objects and state or write the number of the objects counted.	An animal keeper must be able to count the number of animals to be fed and the number of various supplies received. To accomplish this task, the student must be able to count objects up to one hundred. **To demonstrate the ability to perform this task, the student will draw boxes on a sheet of paper with a varying number of "x's" and total the number of "x's".**



1C.5 Solve routine word problems using multiplication and/or division of whole numbers.	See 5D.4
5D.4 Identify comparisons of two numbers in forms such as a:b, "a is to b", or "a parts to b parts", as ratios.	An animal keeper must be able to mix proportions of dry and canned dog food in varying quantities to feed the animals. To accomplish this task, the student must be able to solve problems with proportions. **To demonstrate the ability to perform this task, the student will determine that:** **1/2 = 3/6, 2/3 = 14/21, 4/5 = 20/25, 7/10 = 35/50, 3/4 = 9/12.**

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
15A.3 Read and use words from a list of words common to the vocabulary of a given occupation.	An animal keeper must be able to use the occupational vocabulary. To accomplish this task, the student must be able to read and use the occupational vocabulary. **To demonstrate the ability to perform this task, the student will match the following with 90% accuracy.** A. pick-up slip B. quarantine C. protective custody D. scraper E. spay F. distemper G. mange H. kennel I. shelter J. neuter K. disinfectant L. euthanize M. invoice 1. causing death painlessly 2. an itemized list of goods shipped to buyer, stating quantities, prices, shipping charges, etc. 3. in safe keeping 4. any isolation or restriction on travel to keep contagious diseases, insect pests, etc. from spreading 5. anything that destroys harmful bacteria, viruses, etc. 6. to castrate or spay an animal 7. a place of protection from the elements or danger 8. a place where dogs are bred or kept 9. an infectious disease in young dogs 10. a skin disease of mammals caused by parasitic mites and characterized by itching, loss of hair, etc. 11. to sterilize a female animal by removing the ovaries 12. animal which fights or quarrels 13. form containing orders and permission to impound an animal Key: A 13, B 4, C 3, D 12, E 11, F 9, G 10, H 8, I 7, J 6, K 5, L 1, M 2.
16A.3 Identify various kinds of forms by stating the kind of information to be recorded.	See 16A.4
16A.4 Given a variety of common business forms such as work orders, pay vouchers and receipts, answer factual questions based on the data on the form.	An animal keeper must be able to read a paycheck and other business forms. To accomplish this task, the student must be able to answer factual questions about data on forms. **To demonstrate the ability to perform this task, the student will refer to the paycheck below and determine from the check stub that the gross pay is $190.40, the withholding is $25.50, the Social Security tax is $8.00 and the net pay is $156.90.**

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES

Name Louis Stacey				
From 8/19	To 9/1			incl.
Regular			190.	40
Overtime				
Total Earnings			190.	40
wh/tax	25.	50		
F.I.C.A.	8.	00		
Total Deductions			33.	50
Amount of Check			156.	90

No. 153

September 8, 19 67

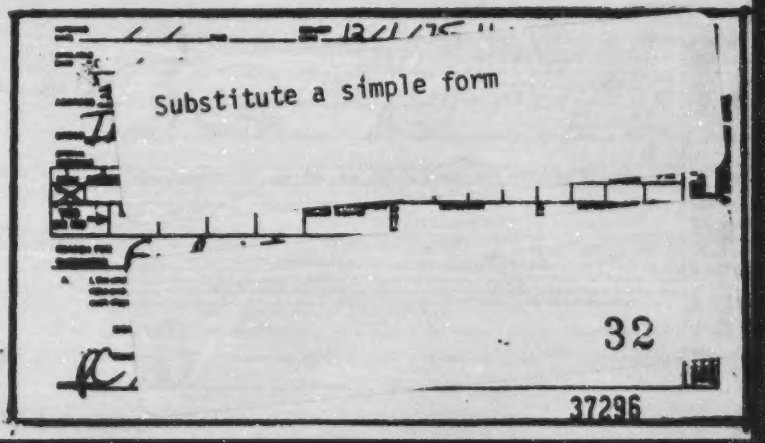
PAY TO THE ORDER OF Louis Stacey $ 156.90

One hundred fifty-six and 90/100 ---------- DOLLARS

32ND AND BROADWAY OFFICE
Valley National Bank
LAND, CALIFORNIA

Tristram Shandy

To demonstrate the ability to perform this task, the student will read the information on the form to the instructor.



INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
16C.1 Given notes, letters or memos, be able to identify: a. the author; b. the recipient; c. the activities required of the recipient; and answer factual and interpretative questions from the contents.	An animal keeper must be able to read daily memos and forms from the supervisor on regulations and policies in caring for animals. To accomplish this task, the student must be able to read memos and forms. **To demonstrate the ability to perform this task, the student will read the information below to the instructor.**

October 30, 1976

To: All Employees

Fr: Operations Department

Re: Policy and Procedural Changes - EFFECTIVE IMMEDIATELY

If there are more than one cat or kitten in the cage, please put on I-denti-band on the cat or kitten that the Potential Adoptor may be interested in. On the I-denti-band write: "1st", "2nd", etc. - correspnding to the first, second, etc. choices on the Potential Adoptor's Slip.

All dogs and puppies placed in kennels P-1 through P-6 are to be I-dent-banded. It doesn't matter whether the dogs are mature or puppies.

Employees wishing to cash a check must have the check first O. K.'d by Lane Plunkett, Jan Eustis, Peter Caldara, or Rich Ward. There will be no exceptions to this policy.

No one is to go into a cash drawer except service representatives, supervisors on duty, or animal control officers working at the counter at Redwood City.

17A.1 Select appropriate titles for paragraphs, given a list of titles.	See 17A.3
17A.2 Match a given list of main ideas to appropriate paragraphs.	See 17A.3
17A.3 Identify orally the main idea in a given paragraph.	An animal keeper must be able to carry out written instructions. To accomplish this task, the student must be able to read a paragraph and determine the main idea of that paragraph. **To demonstrate the ability to perform this task, the student will read below and determine that the main idea is that the owner is responsible for the actions of a dog.**

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
	As a dog owner, you know the companionship, the loyalty and love, the pleasure and sheer fun that your dog adds to your life. But there are many dog owners who do not realize that with every right goes a corresponding duty. Dog owners must consider their responsibilities toward their neighbors and toward their communities. If they don't, they are not "good dog neighbors." Your dog does not have a sense of civic responsibility, so you have to think for him. Put yourself in your neighbors' place and try to imagine how your dog's habits affect them. It's up to you to train your dog early so that you will enjoy each other without spoiling the enjoyment of others. If you own a dog or are planning to own one, this leaflet will tell you how to be a "good dog neighbor" — how to make sure your pet doesn't become a pest. Your neighbors will be happier — and so will you and your dog.
17A.4 Identify statements as being true or false after reading a given selection.	See 17A.5
17A.5 Answer "what," "who," "when," and "where" questions, using factual information from an article.	An animal keeper must be able to carry out instructions received in written form. To accomplish this task, the student must be able to ascertain "what," "who," "when," and "where" from a typical memo of instructions on policy. **To demonstrate the ability to perform this task, the student will read 12-A and determine that:** **a. trap deposits will be refunded up to nineteen days after rental.** **b. the new name for the receptionist is service representative.**
19A.5 State the most important question which a speaker wants answered.	See 19A.15
19A.6 Identify the main outcome expected from spoken directions.	See 19A.15
19A.7 State the main idea from a spoken statement of several sentences.	See 19A.15
19A.10 Answer "who," "what," "where," "when" and literal "why" questions based on spoken information.	See 19A.15
19A.12 List directions that were given by a speaker.	See 19A.15
19A.13 List questions which a speaker asked.	See 19A.15

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
19A.15 Perform a series of two or three activities which require recall of oral instructions. (The activities to be within the abilities of the student — recall is the item to be demonstrated.)	An animal keeper must be able to carry out oral instructions from the staff regarding work to be completed. To accomplish this task, the student must be able to recall a series of oral instructions with accuracy. **To demonstrate the ability to perform this task, the student will listen to the instructor read paragraph two, appendix 12 A. After waiting fifteen minutes, the student will relate the main points to the instructor.**
21A.3 Given a date (day, month, date, year), write the date using correct punctuation and capitalization.	See 22A.1
21A.4 Given a standard clock, tell correct time to within 5 minutes of actual time.	An animal keeper must be able to fill in a timecard. To accomplish this task, the student must be able to tell time and record it. **To demonstrate the ability to perform this task, the student will read the four clocks below, determine the correct times as indicated and record them.**

22A.1 Given simple date in the form of words and figures, write phrases on forms which are legible and which convey the desired information.	An animal keeper must be able to write a daily, numbered list of quarantined animals, giving a description of the animal and the date. To accomplish this task, the student must be able to record numbers and information accurately. **To demonstrate the ability to perform this task, the student will read the information on the mock cage tag below as:** **a brown cocker spaniel with tag number 478923;** **and record it in space 8 on the form below.**

Brown Cocker Spaniel No: 478923

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES

Animal Number	Animal Description	Date
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		

40B

25A.6 Explain to someone else how to perform a fairly complex task given experience at performing the task, or having learned from another person or a manual how to perform the task.	An animal keeper must be able to work with volunteers and instruct them in doing a job. To accomplish this task, the student must be able to impart information and instructions. **To demonstrate the ability to perform this task, the student will tape record directions on how to tie shoe laces, play back the directions and tie a shoe using the recorded directions.**
25F.1 State and support point of view of employer by presenting or citing supportive knowledge, observation, experience, concerns or beliefs.	An animal keeper must be able to speak with visitors and prospective animal owners to explain policies of the shelter and matters of animal care and animal behavior. To accomplish this task, the student must be able to state the employer's point of view and explain it. **To demonstrate the ability to perform this task, the student will role-play one of these situations with the instructor:** **a. Animal keeper is asked the best way to care for a new puppy.** **b. Animal keeper is asked to explain procedure for adopting a dog.** **c. Animal keeper is asked why some animals have to be "put to sleep."**

October 30, 1975

To: All Employees

Fr: Operations Department

Re: Policy and Procedural Changes - EFFECTIVE IMMEDIATELY

12-A

Please read the following:

1. The following are calls to be handled by Animal Control Officers:

   a. All Emergencies (ex. 1091C, 1091E, 1091F)
   b. Police Dept. requests
   c. DOA requests - advise the citizen that they will be picked-up only if we have the time. Also advise we are on emergency service only.

   The service representative will be responsible for taking lost and found reports - no complaints will be taken on Sundays.

2. If there are more than one cat or kitten in the same cage, please put on I-denti-band on the cat or kitten that the Potential Adoptor may be interested in. On the I-denti-band write: "1st", "2nd", etc. - corresponding to the first, second, etc. choices on the Potential Adoptor's Slip.

3. All dogs and puppies placed in kennels P-1 through P-6 are to be I-denti-banded. It doesn't matter whether the dogs are mature or puppies.

4. Employees wishing to cash a check must have the check first O.K.'d by Lane Plunkett, Jan Eustis, Peter Caldara, or Rich Ward. There will be no exceptions to this policy.

5. No one is to go into a cash drawer except service representatives, supervisors on duty, or animal control officers working at the counter at Redwood City.

6. Trap deposits will be refunded up to an additional 5 days from the 14 days agreed upon in the trap deposit contract. After the 5 days, no refund will be given out. The trap becomes the property of the rentor. Do not indicate to the rentor that he or she has an additional five (5) days to return said trap at any time.

7. Receptionists are to be called Service Representatives.

A.C.E. COMPETENCY BASED JOB DESCRIPTION 15

OCCUPATIONAL TITLE: TIRE REPAIRPERSON

INSTRUCTIONAL OBJECTIVES | JOB COMPETENCIES

FACT SHEET

COMPETENCY BASED JOB DESCRIPTION FACT SHEET

OCCUPATIONAL TITLE: Tire Repairperson

DOT CODE: 915.884 (4th Ed.: 915.684-010)

ACE Number: 15

CAREER LADDER:

FIRST LEVEL:
Tire Repairperson

SECOND LEVEL:
Tire Service Supervisor
Tire Vulcanizer
Tire Inspector

THIRD LEVEL:
Tire Technician

DOT'S GENERAL EDUCATIONAL DEVELOPMENT LEVEL: 2

SITE WHERE THE JOB CAN BE OBSERVED:

Chevron-Standard Station
Ralston Avenue and Alameda de las Pulgas
Belmont CA 94002

Number of Annual Jobs in San Mateo County 55. This number is based upon the San Francisco-Oakland SMSA, U.S. Census Manpower projections and the quarterly employment security application record system reports on local San Mateo County Employment Development Department job opening activity.

These materials were developed pursuant to a grant from HEW, OE under PL93-380, Section 309. This does not necessarily imply endorsement of the content.

The activity which is the subject of this report was supported in whole or in part by the U.S. Office of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U.S. Office of Education, and no official endorsement by the U.S. Office of Education should be inferred.

Job Prerequisites: Service Station experience, auto mechanics courses (basic), or other experience with tires, driver's license, job application, interview.

JOB DESCRIPTION (DOT): Repairs damaged tires of automobiles, buses, trucks, and other automotive vehicles: Raises vehicle, using hydraulic jack, and unbolts wheel, using lug wrench. Removes wheel from vehicle by hand or, when repairing giant tires of heavy equipment, by use of power hoist. Locates puncture in tubeless tire by visual inspection or by immersing inflated tire in water bath and observing air bubbles emerging from puncture. Seals puncture in tubeless tire by inserting adhesive material and expanding rubber plug into puncture, using handtools. Separates tubed tire from wheel, using rubber mallet and metal bar or mechanical tire changer. Removes inner tube from tire and inspects tire casing for defects, such as holes and tears. Glues boot (tire patch) over rupture in tire casing, using rubber cement. Inflates inner tube and immerses it in water to locate leak. Buffs defective area of inner tube, using scraper, and patches tube with adhesive rubber patch or seals rubber patch to tube using hot vulcanizing plate. Reassembles tire onto wheel, and places wheel on a balancing machine to determine counterweights required to balance wheel. Hammers required counterweights onto rim of wheel. Cleans sides of white wall tires and remounts wheel onto vehicle. Responds to emergency calls to make repairs or replacements of damaged tires at customer's home or on the road.

THE ACADEMIC REQUIREMENTS FOR THE JOB OF TIRE REPAIRPERSON

Below are listed, first in general terms and then in specific competencies, the math and communication activities which a person must typically be able to carry out to function successfully as a tire repairperson.

The right-hand column lists the exact competencies found to have been essential to the job in our onsite employee interview. This column also notes the skills which are prerequisite to those competencies.

The left-hand column* states the skill in more general language. The controlled language of this column permits comparison of skills between occupations.

* The items in the left-hand column have been abstracted from an abbreviated version of the taxonomy of generic skills developed by Kawula, W. and Smith, A. De W., Generic Skills Handbook of Occupational Information, Training Research and Development Station, Prince Albert, Saskatchewan, 1975.

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
1A.1 Given a series of numbers in numeral form (eg, 10, 20, 30) be able to copy series in hand-written form with 100% accuracy.	A tire repairperson must be able to look up parts codes in a parts list and copy them down to check if the parts are in stock. To accomplish this task, the student must be able to write down the exact parts code on a piece of paper after looking at the code printed elsewhere. To demonstrate the ability to perform this task, the student will copy the following parts codes exactly: 401-25 611-17 408-92 400-13
1A.4 Write a whole number less than 10 million given the word name of the number.	See 1A.5
1A.5 Count a set of up to 100 objects and state or write the number of objects counted.	A tire repairperson must be able to take frequent inventories of supplies. To accomplish this task, the student must be able to count objects and state and/or write the number counted. To demonstrate the ability to perform this task, the student will count the number of pencils on the table and record the number on paper.
1B.2 Find the sum of whole numbers of 1-5 digits including cases when carrying is required.	See 1B.5
1B.4 Find the difference of whole numbers of 1-5 digits including cases when borrowing is required.	See 1B.5
1B.5 Solve a routine word problem using addition and/or subtracting of whole numbers.	A tire repairperson must be able to compute the number of tires left in stock. To accomplish this task, the student must be able to solve a problem using subtraction of whole numbers. To demonstrate the ability to perform this task, the student will determine that if there were 78 tires on hand in the morning and 27 were sold that day, then 51 remain in stock.

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
1C.2 Find the product of a given pair of whole numbers where one number is up to 5 digits and the other is up to 3 digits.	See 1C.5
1C.4 Find the quotients of 1-5 digit dividends and 1-3 digit divisors including cases with remainders.	See 1C.5
1C.5 Solve routine word problems using multiplication and/or division of whole numbers.	A tire repairperson must be able to compute the cost of repair of four tires if the cost of one tire is given. To accomplish this task, the student must be able to solve word problems using multiplication and/or division of whole numbers. To demonstrate the ability to perform this task, the student will determine the following: If 1 tire costs $15.00, then 4 tires cost $60.00 plus a balance fee of $12.00, then the total cost is $72.00 or an average of $18.00 per tire.
2A.1a In a given diagram or illustration, name the fraction which represents a given number of parts out of a total number of equal parts.	A tire repairperson must be able to determine tread depth. To accomplish this task, the student must be able to name the fraction that represents a given number of parts out of a total number of parts. To demonstrate the ability to perform this task, the student will determine that 3/4 of the circle is darkened.

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES	4.
2B.1 Calculate the sum in simplest form of two or three common fractions with like denominators.	See 2B.2	
2B.2 Calculate the sum in simplest form of two or three common fractions with unlike denominators.	A tire repair person must be able to make adjustments on tires. To accomplish this task, the student must be able to add fractions. To demonstrate the ability to perform this task, the student will determine that: $\frac{1}{4} + \frac{3}{32} = \frac{11}{32}$ $\quad$ $\frac{13}{16} + \frac{1}{8} = \frac{15}{16}$	
2B.5 Calculate the difference in simplest form of two common fractions with like denominators.	See 2B.6	
2B.6 Calculate the difference in simplest form of two common fractions with unlike denominators.	A tire repair person must be able to determine the wear on tire treads. To accomplish this task, the student must be able to subtract fractions. To demonstrate the ability to perform this task, the student will perform the following problems: $\frac{15}{16} - \frac{3}{32} = \frac{27}{32}$ $\quad$ $\frac{1}{8} - \frac{3}{32} = \frac{1}{32}$	
2C.1 Calculate the product in the simplest form of: A. a common fraction and a whole number. B. two common fractions.	See 2D.1	
2C.4 Calculate the quotient in simplest form of: A. a common fraction divided by a whole number, B. two common fractions, C. a whole number divided by a common fraction.	See 2D.1	

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
2D.1 Use addition, subtraction, multiplication, or division, as appropriate, in the solution of problems involving a combination of two or more functions with fractional numbers and/or mixed numbers.	A tire repairperson must be able to measure the amount of tread left on a tire and then compute the fractional part of the tire tread that has been worn away. In addition, given the wear rate on that tire, the student must be able to compute the number of miles of wear left on that tire. To demonstrate the ability to perform this task, the student will determine that the following is correct: If there is 27/32 of a tire tread remaining, then 5/32 of the tread has been worn off. At a wear rate of 9/32 per 5000 miles, the tire is good for 15,000 miles.
3A.1 Read a given 1-4 place decimal fraction and write its name in words.	A tire repairperson must be able to read decimals that indicate sizes on tire. To accomplish this task, the student must be able to read and write a decimal fraction. To demonstrate the ability to perform this task, the student will read tire size 7.075 x 15 and write seven and seventy-five thousandths times fifteen.
3A.2 Write a 1-4 place decimal fraction given the word name of the number.	See 3E.3
3B.1 Calculate the sum of a set of decimal fractions.	See 3E.3
3E.2 Write a value less than $10,000,000.00, given the word name of the amount.	See 3E.3
3E.3 Add columns of dollars and cents values, including amounts from $ .01 to $9,999.99.	A tire repairperson must be able to total dollars and cents on invoices for work done. To accomplish this task, the student must be able to add columns of dollars and cents. To demonstrate the ability to perform this task, the student will determine that the following is correct. $12.50 3.82 6.29 $22.61
3E.5 Calculate the total cost of up to 25 items of equal value.	See 3F.1
3E.7 Round off dollars and cents amounts to the nearest cent.	See 3F.1

INSTRUCTIONAL OBJECTIVES

3E.10 Handle money and make change.

3F.1 Use addition, subtraction, multiplication or division, as appropriate, in the solution of problems involving a combination of two or more functions with decimal fractions.

4B.1 Calculate a percent of a number of the following types:

5 % of 170 : ____

5.7% of 170: ____

5.7% of 17.43: ____

JOB COMPETENCIES

A tire repair person must be able to make change when waiting on a customer. To accomplish this task, the student must be able to handle money and make change

To demonstrate the ability to perform this task, the student will determine that the following is correct:

If a bill amounts to $17.27, the correct change for a $20.00 bill is $2.73 counted this way; $17.27, $ .30, $ .40, $ .50, $ .75, $18.00, $19.00, $20.00.

A tire repair person must be able to compute the total charge for repair of several tires including tax on parts. To accomplish this task, the student must be able to use addition, subtraction, multiplication or division as appropriate.

To demonstrate the ability to perform this task, the student will determine that the following is correct:

repair two tires at $3.05 each	$ 6.10
repair one tire at $7.50	7.50
align four tires at $12.00	12.00
total cost for four tires	$25.60

Average cost per tire - $6.40

A tire repair person must be able to charge people for tires or services rendered. To accomplish this task, the student must be able to calculate a percent of a number.

To demonstrate the ability to perform this task, the student will determine the 6% sales tax on a bill of $100.50.

Key: $6.03

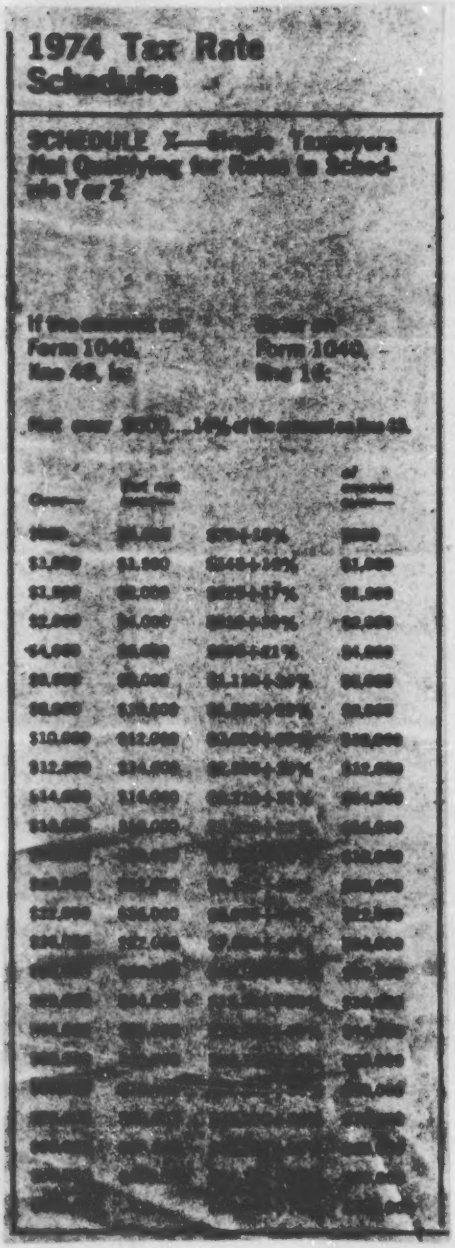
INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
6F.2 Measure a given distance or one dimension of an object with a ruler or tape measure correct within one unit of the scale reading.	A tire repairperson must be able to use a steel rule for measuring To accomplish this task, the student must be able to measure with a ruler or tape measure. To demonstrate the ability to perform this task, the student will determine that line A-B below is 3 3/8 inches long.
6G.7 Estimate the duration of time actually required to perform routine functions, to within 50% of the actual time.	A tire repairperson must be able to estimate the time it will take to repair a tire. To accomplish this task, the student must be able to estimate the duration of time required to perform a function. To demonstrate the ability to perform this task, the student will estimate the amount of time necessary to drive from home to the ACE project.
6H.3 Given a simple and familiar job, unit costs, and wage or salary rates, estimate the units of material and hours/days of work and calculate total costs.	A tire repairperson must be able to estimate the total costs of a tire repair job. To accomplish this task, the student must be able to calculate total costs when given unit costs and wage rates. To demonstrate the ability to perform this task, the student will determine that the following is correct: If labor costs $12.00 per hour and parts cost $4.50, then tax will be $ .27 and total cost will be $16.77 for one hour of work.
13A.1 Given letters of the alphabet in manuscript form and in random order, read each letter and pronounce each letter correctly.	A tire repairperson must be able to read and write parts codes. To accomplish this task, the student must be able to read letters of the alphabet correctly. To demonstrate the ability to perform this task, the student will read aloud the following parts codes: LK-MT AH-CO FR-RM

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
15A.1 Read a list of 50 words from a series of commonly used terms (eg from Dolch List).	See 15A.3
15A.2 Read words from the labels of frequently used products or of the products used in a given occupation.	See 15A.3
15A.3 Read and use words from a list of words common to the vocabulary of a given occupation	A tire repairperson must be able to converse with customers and co-workers. To accomplish this task, the student must understand the occupational vocabulary. To demonstrate the ability to perform this task, the student will match the following with 90% accuracy. A. tubeless tire B. boot C. rim of wheel D. hydraulic jack E. hoist F. lug wrench G. invoice H. radial tire I. tire casing J. vulcanizing plate K. counterweights L. air gauge M. balance scales 1. is used when removing giant tires of heavy equipment 2. seals rubber patch to tube using heat 3. used in connection with balancing machine to balance a wheel 4. indicates pounds of pressure in a tire 5. an automobile tire consisting only of a single air chamber 6. raises vehicle 7. tire covering 8. a tool used to unbolt wheels 9. metal flange of wheel on which tire is mounted 10. having ply cords extending to beads almost at right angles to center line of tread 11. instrument for balancing wheel 12. a list of prices for items sold 13. tire patch Key: A 5, B 13, C 9, D 6, E 1, F 8, G 12, H 10, I 7, J 2, K 3, L 4, M 11.
16B.1 Describe the uses of charts and tables and define them as a visual way to give information in a compact and organized form.	A tire repairperson must be able to use tables to determine tax on merchandise. To accomplish this task, the student must be able to describe the uses of charts and tables. To demonstrate the ability to perform this task, the student will refer to 15-A and determine that if the amount on Form 1040 is over $500 but not over $1,000 enter on form 1040 (line 16) $70 + 15% of excess over $500.
16B.3 Given common reference tables and charts such as organization charts, parts charts, reference tables, including charts and tables designed in matrix form (rows and columns), answer factual questions based on the data supplied.	A tire repairperson must be able to correctly bill customers. To accomplish this task, the student must be able to use common reference tables and charts such as sales tax sheets. To demonstrate the ability to perform this task, the student will examine the sales tax chart 15-A and determine the sales tax on a bill totaling $97.15.

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
15D.3 Apply instructions or information from a given manual to a particular situation given an oral description of a problem that can be solved using information from the manual.	A tire repairperson must be able to use service manuals. To accomplish this task, the student must be able to apply information from a manual to a particular situation, given a description of a problem. To demonstrate the ability to perform this task, the student will determine from reading 15-B that shaky rides on tires that have flat spots or cuppings are commonly caused by loose wheel bearings, worn shocks, worn front-end parts, and out-of-balance tire-and-wheel assemblies.
21A.2 Given the dates of the year, locate dates on a current calendar.	See 21A.3
21A.3 Given a date (day, month, date, year) write the date using correct punctuation and capitalization.	A tire repairperson must be able to fill in dates on a job order. To accomplish this task, the student must be able to write dates correctly. To demonstrate the ability to perform this task, the student will write 4, 1976, June as June 4, 1976.
22A.1 Given simple data in the form of words and figures, write on forms phrases that are legible and convey the desired information.	See 22B.2
22B.2 Complete a sample application form for employment in a legible manner.	A tire repairperson must be able to fill out a job application. To accomplish this task, the student must be able to complete a sample application form for employment in a legible manner. To demonstrate the ability to perform this task, the student will complete form on 15-C.

15-A

FORM 1040



1974 Tax Rate Schedules

SCHEDULE X—Single Taxpayers Not Qualifying for Rates in Schedule Y or Z

If the amount on Form 1040, line 40, is	Enter on Form 1040, line 41:
Not over $500	14% of the amount on line 40.
Over—	But not over—		of excess over—
$500	$1,000	$70+15%	$500
$1,000	$1,500	$145+16%	$1,000
$1,500	$2,000	$225+17%	$1,500
$2,000	$4,000	$310+19%	$2,000
$4,000	$6,000	$690+21%	$4,000
$6,000	$8,000	$1,110+23%	$6,000
$8,000	$10,000	$1,570+25%	$8,000
$10,000	$12,000	$2,070+27%	$10,000
$12,000	$14,000	$2,610+29%	$12,000
$14,000	$16,000	$3,190+31%	$14,000
$16,000	$18,000	$3,810+34%	$16,000
$18,000	$20,000	$4,490+36%	$18,000
$20,000	$22,000	$5,210+38%	$20,000
$22,000	$24,000	$5,970+40%	$22,000
$24,000	$26,000	$6,770+42%	$24,000
$26,000	$28,000	$7,610+45%	$26,000
$28,000	$32,000	$8,510+48%	$28,000
$32,000	$36,000	$10,430+50%	$32,000
$36,000	$40,000	$12,430+53%	$36,000
$40,000	$44,000	$14,550+55%	$40,000
$44,000	$52,000	$16,750+58%	$44,000
$52,000	$64,000	$21,390+60%	$52,000
$64,000	$76,000	$28,590+62%	$64,000
$76,000	$88,000	$36,030+64%	$76,000
$88,000	$100,000	$43,710+66%	$88,000
$100,000	$120,000	$51,630+68%	$100,000
$120,000	$140,000	$65,230+69%	$120,000
$140,000	$160,000	$79,030+70%	$140,000
$160,000	$180,000	$93,030+71%	$160,000
$180,000	$200,000	$107,230+72%	$180,000
$200,000	$250,000	$121,630+73%	$200,000
$250,000	$300,000	$158,130+74%	$250,000
$300,000	$400,000	$195,130+75%	$300,000
$400,000	$500,000	$270,130+76%	$400,000
$500,000	$600,000	$346,130+77%	$500,000
$600,000	$700,000	$423,130+78%	$600,000
$700,000	$800,000	$501,130+79%	$700,000
$800,000	$900,000	$580,130+80%	$800,000
$900,000	$1,000,000	$660,130+81%	$900,000
$1,000,000	$1,500,000	$741,130+82%	$1,000,000
$1,500,000	$2,000,000	$1,151,130+83%	$1,500,000
$2,000,000	$3,000,000	$1,566,130+84%	$2,000,000
$3,000,000	$4,000,000	$2,406,130+85%	$3,000,000
$4,000,000	$5,000,000	$3,256,130+86%	$4,000,000
$5,000,000	$6,000,000	$4,116,130+87%	$5,000,000
$6,000,000	$7,000,000	$4,986,130+88%	$6,000,000
$7,000,000	$8,000,000	$5,866,130+89%	$7,000,000
$8,000,000	$9,000,000	$6,756,130+90%	$8,000,000
$9,000,000	$10,000,000	$7,656,130+91%	$9,000,000
$10,000,000		$8,566,130+92%	$10,000,000

SALES TAX

Transaction	Tax	Transaction	Tax
85.92-86.08	5.16	92.59-92.74	5.56
86.09-86.24	5.17	92.75-92.91	5.57
86.25-86.41	5.18	92.92-93.08	5.58
86.42-86.58	5.19	93.09-93.24	5.59
86.59-86.74	5.20	93.25-93.41	5.60
86.75-86.91	5.21	93.42-93.58	5.61
86.92-87.08	5.22	93.59-93.74	5.62
87.09-87.24	5.23	93.75-93.91	5.63
87.25-87.41	5.24	93.92-94.08	5.64
87.42-87.58	5.25	94.09-94.24	5.65
87.59-87.74	5.26	94.25-94.41	5.66
87.75-87.91	5.27	94.42-94.58	5.67
87.92-88.08	5.28	94.59-94.74	5.68
88.09-88.24	5.29	94.75-94.91	5.69
88.25-88.41	5.30	94.92-95.08	5.70
88.42-88.58	5.31	95.09-95.24	5.71
88.59-88.74	5.32	95.25-95.41	5.72
88.75-88.91	5.33	95.42-95.58	5.73
88.92-89.08	5.34	95.59-95.74	5.74
89.09-89.24	5.35	95.75-95.91	5.75

15-B

TIRE TREAD WEAR

Uneven tread wear on a tire is a sure sign that something is wrong--either mechanically or with the way the tire is inflated. Usually the kind of wear that shows on the tire indicates what the problem is.

An unusual amount of wear on only the outside edge of a front tire is an indication of too much positive camber. If the wear is on the inside edge of the tire, it indicates too much negative camber.

Cupping or flat spots are usually signs of out-of-balance tire-and-wheel assemblies, worn shocks, loose wheel bearings, and/or worn front-end parts.

Underinflated tires show wear on outside edges, while over-inflation causes tires to wear on the inside edges.

* * * * * * * * *

15-C

EMPLOYMENT APPLICATION

1. NAME (Last) (First) (Middle)

2. ADDRESS (Number, Street, City, Zip Code) 3. TELEPHONES

Home

Business

Length of Time at Current Address | Time at Previous Address

QUESTIONS 4 THROUGH 10 MUST BE ANSWERED *YES* OR *NO*

	YES	NO
4. Do you have a valid California Driver's License?		
5. Do you claim Veteran's Preference? If *Yes*, complete the following and submit copy of DD214 with application. (Veteran's Preference is applicable to entry level positions, only.) SERVICE DATES From _____ To _____ NOTE: To receive credit you must have served at least 30 days in the United States Armed Forces in time of war, or national emergency declared by the President of the United States of America, and have been discharged or released under conditions other than dishonorable.		
6. May we contact your present employer as to your qualifications, character and ability?		
7. Have you ever been dismissed from employment or resigned to avoid dismissal for misconduct or unsatisfactory service? (If *Yes*, give details in Question 11)		
8. Have you ever received Workman's Compensation? (If *Yes*, describe in Question 11)		
9. Have you any disease, nervous disorder, physical disability or infirmity? (If *Yes*, describe in Question 11)		
10. Have you been hospitalized for any reason in the past five years? (If *Yes*, describe in Question 11)		

11 Explanations to questions 7 through 10 (Use additional sheets of paper, if necessary.)

12 **EDUCATIONAL RECORD**

Circle Highest Grade Completed: 6 7 8 9 10 11 12 | Name and Location of Last Elementary or High School | Graduated? Yes ☐ No ☐

Name and Location of College or University | Major | Credits or Degree

List any related business, trade, special training (give location and dates); estimated typing and shorthand speeds; San Mateo County typing and/or shorthand certificates (give certificate number and date); location of college placement file; and other related information as applicable.

13. **EMPLOYMENT INFORMATION** (Begin with your present employment and work back. Account for all time during the past ten years, including periods of unemployment. In addition, please describe any other related work experience, including volunteer work. Use additional sheets if more space is required.)

Present or Last Position

Employer _____ From _____ mo. year

Address _____ To _____ mo. year

Supervisor's Name & Title _____ Phone _____ Total _____ years months

Your Title _____ Full Time ☐ Part Time ☐

Duties _____ Last Salary _____

Reason for leaving _____

Employer _____ From _____ mo. year

Address _____ To _____ mo. year

Supervisor's Name & Title _____ Phone _____ Total _____ years months

Your Title _____ Full Time ☐ Part Time ☐

Duties _____ Last Salary _____

14. **PERSONAL REFERENCES - GIVE THREE** (Do not include previous employers or relatives.)

NAME	ADDRESS	PHONE NUMBER

A.C.E. COMPETENCY BASED JOB DESCRIPTION 16

OCCUPATIONAL TITLE: MUFFLER INSTALLER HELPER

D.O.T. CODE: 807.684
(4th Ed.: 807.664-010

ACE Number: 16

FACT SHEET

CAREER LADDER:
FIRST LEVEL:
Muffler Installer Helper
SECOND LEVEL:
Muffler Installer
THIRD LEVEL:
Muffler Installer Inspector
Supervisor
Shop Owner

GED LEVEL: 2

Site where the job can be observed:
Midas Muffler
700 El Camino Real
San Bruno, CA.

Number of Annual Jobs in San Mateo County: 15 This number is based upon the San Francisco-Oakland SMSA, U.S. Census Manpower projections and the quarterly employment security application record system reports on local San Mateo County Employment Development Department job opening activity.

D.O.T. JOB DESCRIPTION: Replaces defective mufflers and pipes on automobiles, buses, trucks, and other automotive vehicles: Removes defective muffler, using hacksaw, wrenches, airpowered tools, or acetylene torch. Selects replacement muffler according to automotive vehicle model and customer's preference. Bolts or tack welds new muffler into place. Aligns muffler and tailpipe, and bolts hangers to frame to secure muffler.

THE ACADEMIC REQUIREMENTS FOR THE JOB OF MUFFLER INSTALLER

Below are listed, first in general terms, and then in specific competencies, the math and communication activities which a person must typically be able to carry out to function successfully as a muffler installer.

The right hand column lists the exact competencies found to have been essential to the job in our on-site employee interview. This column also notes the skills which are prerequisite to those competencies.

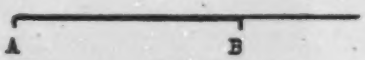
The left hand column states the skill in more general language. The controlled language of this column permits comparison of skills between occupations.

The items in the left hand column have been abstracted from an abbreviated version of the taxonomy of generic skills developed by Kawula, W., and Smith., A. De W., **Generic Skills Handbook of Occupational Information**, Training Research and Development Station, Prince Albert, Saskatchewan, 1975.

These materials were developed pursuant to a grant from HEW, OE under PL93-380, Section 309. This does not necessarily imply endorsement of the content.

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
1A.1 Given a series of numbers in numeral form (eg 10, 20, 30), be able to copy series in handwritten form with 100% accuracy.	See 1A.2
1A.2 Identify place value of digits in a given whole number with up to seven digits.	A muffler installer must be able to read serial numbers for exhaust pipes. To accomplish this task, the student must be able to read numbers with up to seven digits. To demonstrate the ability to perform this task, the student will read the following numbers to the instructor and identify them as being in ascending order: 670 6,700 26,607 24,860 28,607
1A.5 Count a set of up to one hundred objects and state or write the number of objects counted.	A muffler installer must be able to inventory the stock of mufflers several times a year. To accomplish this task, the student must be able to count the mufflers and write the number counted. To demonstrate the ability to perform this task, the student will accurately count fifty-six paper clips from a box of one hundred clips and write the number 56 on a slip of paper.
1B.1 Perform additions of whole numbers given problems such as: What is the total of 8 and 5? 8 plus 5 is ____. Find the sum of 8 and 5. 8 + 5 = ____ Add 8 and 5. 8 +5	See 1B.2
1B.2 Find the sum of a set of whole numbers of 1-5 digits, including cases in which carrying is required.	A muffler installer must be able to add the hours on a time card. To accomplish this task, the student must be able to find the sum of whole numbers. To demonstrate the ability to perform this task, the student will solve the following problem: 8 9 7 8 + 6

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
1B.3 Perform subtraction of whole numbers given problems such as: 8 minus 5 is _____. Find the difference of 8 and 5. 8 - 5 = _____ If you had 8 and gave away 5, you would have _____. Subtract 5 from 8. 8 -5	A muffler installer must be able to subtract the number of parts on hand from the number of parts needed to have a sufficient stock on hand. To accomplish this task, the student must be able to perform subtraction of whole numbers. To demonstrate the ability to perform this task, the student will solve the following problem: 421 - 389
1B.6 Perform the above operations with the aid of a calculator.	See 3F.1
3E.3 Add columns of dollar and cent values including amounts from $ .01 to $9,999.99.	A muffler installer must be able to add columns of three-digit and four-digit dollar and cent figures for repair estimates and bills. To demonstrate the ability to perform this task, the student will add the following and determine that the correct total is $62.94. $ 1.98 14.76 21.20 + 25.00
3E.4 Subtract one amount of money from an other with values up to $10,000.00.	A muffler installer must be able to subtract one amount of money from another in preparing customer bills and credits and determining the difference between estimated and actual repair costs. To demonstrate the ability to perform this task, the student will subtract the following and determine that the difference is $7.90. $ 21.36 -13.46
3E.5 Calculate the total cost of up to twenty-five items of equal value.	A muffler installer must be able to determine the total cost of parts purchased, based on the unit cost. To accomplish this task, the student must be able to calculate the total cost of a number of items of equal value. To demonstrate the ability to perform this task, the student will calculate that the total cost of four mufflers, each costing $19.19, is $76.76.

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
3E.9 Perform objectives 3 to 5 with the aid of a calculator.	See 3F.1
3F.1 Use addition, subtraction, multiplication, or division, as appropriate, in the solution of problems involving a combination of two or more functions with decimal fractions.	A muffler installer must be able to write repair estimates that include both an itemized statement of the cost of parts and labor and the total cost of repair. To accomplish this task, the student must be able to solve decimal fraction problems involving a combination of two or more functions. These may or may not be solved with the aid of a calculator. To demonstrate the ability to perform this task, the student will solve the repair estimate problem 16-4 manually and then, with the aid of a calculator, determine that the answer is $95.20.
6F.2 Measure a given distance or one dimension of an object with a ruler or tape measure, correct to within one unit of the scale reading.	A muffler installer must be able to use a ruler to measure lengths of muffler pipe to the nearest sixteenth of an inch. To demonstrate the ability to perform this task, the student will use a ruler to measure line AB below accurate to the nearest sixteenth of an inch. (Answer: 1 5/16") 
6G.2 Measure the duration of time expended to perform routine functions.	A muffler installer must be able to determine how many hours were spent working on a particular job. To accomplish this task, the student must be able to measure time expended to perform repair work. To demonstrate the ability to perform this task, the student will measure the time it takes to get to ACE and back home.
8A.3 Identify as a graduated scale a series of consecutive whole numbers or multiples of whole numbers with or without equal subdivisions between numbers on a measuring device.	See 8A.5

INSTRUCTIONAL OBJECTIVES

8A.5 Write the measurement indicated on a sketch of a graduated scale:

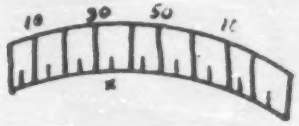
a. to the nearest whole number when the scale is marked off in consecutive whole numbers with or without subdivisions
b. to a given precision when the scale is marked off in multiples of a whole number with or without subdivisions
c. to a given precision when the scale is marked off in whole numbers with or without subdivisions representing fractions such as halves, quarters, eighths, sixteenths, tenths, or fifths
d. to a given precision when the scale is marked off in whole numbers which represent multiples of a given number such as 100 or 1000

8A.6 Write the measurement indicated on a sketch of a combination of scales which may be circular and read in either a clockwise or counterclockwise direction, such as on a gas or electric meter.

JOB COMPETENCIES

A muffler installer must be able to read gauges such as those found on gas welders, arc welders and the hydraulic bender (used to bend muffler pipe). To accomplish this task, the student must be able to read a graduated scale to a given precision.

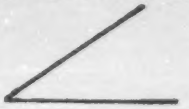
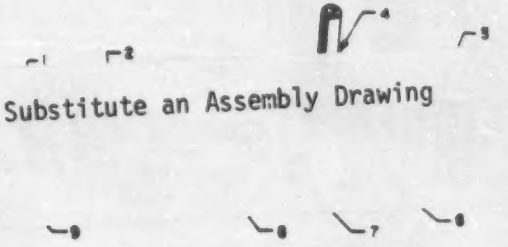
To demonstrate the ability to perform this task, the student will determine that X = 35 pounds.



A muffler installer must be able to read two dials on a hydraulic bender. To accomplish this task, the student must be able to read a combination of circular scales.

To demonstrate the ability to perform this task, the student will determine that the gas meter drawn below reads 24.3 cubic feet.

427

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
11B.1 Identify 30°, 45°, 60°, and 90° angles from a set of such angles, without the aid of a protractor.	A muffler installer must be able to bend or connect a pipe at various angles for muffler installation. To accomplish this task, the student must be able to identify angles without the aid of a protractor. To demonstrate the ability to perform this task, the student will identify the angle below as a 45° angle. 
12D.1 Identify the order in which are put together in an assembly drawing.	A muffler installer must be able to read assembly drawings to assemble and repair mufflers. To accomplish this task, the student must be able to identify the order in which parts are put together in an assembly drawing. To demonstrate the ability to perform this task, the student will refer to the drawing and identify the order in which the parts are assembled (nine steps). 
15A.2 Read words from the labels of frequently used products used in a given occupation.	See 15A.3

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
15A.3 Read and use in an oral sentence words from a list of words common to the vocabulary of a given occupation.	A muffler installer must be able to converse with customers and coworkers. To accomplish this task, the student must be able to use the occupational vocabulary. To demonstrate the ability to perform this task, the student will match the following with 90% accuracy. A. valve B. hanger C. muffler D. gasket E. bracket F. resonator G. tail pipe H. shock absorber I. exhaust pipe J. clamp K. coils 1. a section in the exhaust pipe of an internal-combustion engine, used to silence noises 2. a device for increasing sound by resonance 3. an exhaust pipe at the rear of an automotive vehicle 4. the pipe through which steam, gas, etc., is released 5. a device for clasping or fastening things together 6. support for holding exhaust system to body of car 7. any device in a pipe, etc., that permits a flow in one direction only 8. a series of connected pipes in rows or coils 9. a device, as on the springs of a car, that lessens or absorbs the force of shocks 10. an angle-shaped support, especially one in the form of a right triangle. 11. a piece or ring of rubber, metal, etc., placed around a piston or joint to make it leakproof Key: A 7, B 6, C 1, D 11, E 10, F 2, G 3, H 9, I 4, J 5, K 8.
16A.2 Interpret terminology and abbreviations frequently found in forms.	See 16A.4
16A.3 Identify various kinds of forms by stating the kind of information to be recorded.	See 16A.4

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
16A.4 Given a variety of common business forms such as work orders, job orders, issue and receipt vouchers, claims, and purchase orders, answer factual questions based on the data on the forms.	A muffler installer receives and must be able to read a paycheck. To accomplish this task, the student must be able to answer factual questions based on the data on forms. To demonstrate the ability to perform this task, the student will refer to the paycheck below and determine from the check stub that Louis Stacey earned $190.40 gross pay and that $25.50 was withheld for federal income tax, $8.00 for Social Security tax, and net pay was $156.90.

Name Louis Stacey

From 8/19 To 9/1		incl.
Regular	190	40
Overtime		
Total Earnings	190.	40
w/tax 25. 50		
F.I.C.A. 8. 00		
Total Deductions	33	50
Amount of Check	156.	90

No. 153

September 8, 19 67

PAY TO THE ORDER OF Louis Stacey $ 156.90

One hundred fifty-six and 90/100 ---- DOLLARS

Valley National Bank

LAND, CALIFORNIA

William [illegible]

16B.1 Describe the uses of charts and tables and define them as a visual way to give information in a compact and organized form.	See 16B.2

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
16D.2 State the type of information recorded on given charts or tables.	A muffler installer must be able to use charts to obtain information such as tax rates and part numbers. To accomplish this task, the student must be able to understand how charts provide information in a compact, organized form. To demonstrate the ability to perform this task, the student will use tax chart below to determine that: 6% tax on $68.95 is $4.14.
16D.1 Identify a manual as a handbook of instructions and/or information related to one topic, and give an example of a manual	See 16D.5
16D.4 Given a typical parts manual, be able to locate a particular part and answer factual questions about its description (eg price, code number, vendor, etc.)	See 16D.5

Transaction	Tax	Transaction	Tax
52.92-53.08	3.18	67.25-67.41	4.04
53.09-53.24	3.19	67.42-67.58	4.05
53.25-53.41	3.20	67.59-67.74	4.06
53.42-53.58	3.21	67.75-67.91	4.07
53.59-53.74	3.22	67.92-68.08	4.08
53.75-53.91	3.23	68.09-68.24	4.09
53.92-54.08	3.24	68.25-68.41	4.10
54.09-54.24	3.25	68.42-68.58	4.11
54.25-54.41	3.26	68.59-68.74	4.12
54.42-54.58	3.27	68.75-68.91	4.13
54.59-54.74	3.28	68.92-69.08	4.14
54.75-54.91	3.29	69.09-69.24	4.15
54.92-55.08	3.30	69.25-69.41	4.16
55.09-55.24	3.31	69.42-69.58	4.17
55.25-55.41	3.32	69.59-69.74	4.18
55.42-55.58	3.33	69.75-69.91	4.19
55.59-55.74	3.34	69.92-70.08	4.20
55.75-55.91	3.35	70.09-70.24	4.21
55.92-56.08	3.36	70.25-70.41	4.22
56.09-56.24	3.37	70.42-70.58	4.23

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
16D.5 Apply Instructions or information from a given manual to a particular situation given an oral description of a problem that can be solved using information from the manual.	A muffler installer must be able to use information from a parts manual to give a customer an estimate of repairs needed. To accomplish this task, the student must be able to take a customer's oral description of a muffler problem and locate the parts needed to remedy the problem in the parts manual. To demonstrate the ability to perform this task, the student will refer to 16-B and determine that a rusted-out rear exhaust pipe on a 1968 Delmont 88, 350 engine, with jetaway transmission, will require part number 6M4202 as a replacement.
21A.1 Identify seconds, hours, days, months, years, decades and centuries as units of time.	See 21A.4
21A.2 Given dates of the year, locate dates on a current calendar.	See 21A.4
21A.3 Given a date (day, month, date, year), write the date using correct puntuation and capitalization.	A muffler installer must be able to write dates on repair orders. To accomplish this task, the student must be able to write the date, using correct punctuation and capitalization. To demonstrate the ability to perform this task, the student will write feb, 1972, fifth, tuesday as Tuesday, February 5, 1972.
21A.4 Given a standard clock, tell correct time to within five minutes of actual time.	A muffler installer must be able to determine the amount of time it takes to complete a particular repair job. To accomplish this task, the student must be able to tell and record time correctly. To demonstrate the ability to perform this task, the student will accurately read: as 4:00.

INSTRUCTIONAL OBJECTIVES

22B.2 Complete a sample application form for employment in a legible manner.

22B.4 Write a check and complete bank deposit and withdrawal slips in proper form.

JOB COMPETENCIES

A muffler installer must be able to complete a job application form before being hired. To accomplish this task, the student must be able to complete a sample application form.

To demonstrate the ability to perform this task, the student will refer to 16-C and complete the form accurately and legibly.

A muffler installer must be able to examine a customer's check for accuracy and proper identification. To accomplish this task, the student must write a check in proper form.

To demonstrate the ability to perform this task, the student will prepare a check for $43.96 to Havasu Oil Company on the current date.

No. 359

PAY TO THE ORDER OF _____ $ _____

_____ DOLLARS

Valley National Bank

LAND, CALIFORNIA

INSTRUCTIONAL OBJECTIVES

228.4a Complete a bank form such as Master Charge or Bank of America.

234.1 Repeat information which has been heard.

JOB COMPETENCIES

A muffler installer must be able to correctly fill out charge account forms.

To demonstrate the ability to perform this task, the student will correctly fill out a Master Charge form (below) charging the customer for the following:

$46.50 for labor and 19.50 for parts with a 6% tax on the parts only.

Substitute a Charge Card Form

JRDS

A muffler installer must be able to repeat information which has been heard. To accomplish this task, the student must be able to repeat information which has been heard.

To demonstrate the ability to perform this task, the student will repeat the following instructions after 30 minutes lapse of time:

Master charge hard copy goes in the cash register, yellow copy on the spindle and white copy to the customer.

INSTRUCTIONAL OBJECTIVES	JOB COMPETENCIES
25C.3 List the steps in using the telephone to: a. get the time of day: b. get a number of a person or organization for a local or long distance dall: c. make a person-to-person long distance call: d. make a station-to-station long distance call through the operator: e. make a collect call: f. make a direct distance dial call to points with the same and different area codes: g. report that a telephone is not operating properly: h. report an incorrectly dialed direct distance dial call.	A muffler installer must be able to use a telephone to contact customers and parts suppliers. To accomplish this task, the student must be able to use the telephone correctly. To demonstrate the ability to perform this task, the student will role-play a call to a customer inquiring when the customer will be bringing the car in for repairs that day and asking for a delay of one hour.
26B.1 Given objects, sort by given classification criteria. The sorting should require a minimum of judgement. (To oversimplify, sorting apples by types or tools by various generic classifications would be appropriate, but sorting apples by quality or lumber by grades is a rating skill.)	A muffler installer must be able to sort parts by serial number. To demonstrate the ability to perform this task, the student will sort twenty address cards according to city.

16-A

THE MUFFLER SHOP
100 Main Street
Our Town, CA 90000
(101) 999-0012

No.

SOLD TO: [illegible] T. [illegible]
PHONE NO.: 598-4873
MILEAGE:
DATE: 11-13-75
ADDRESS: 13 [illegible] [illegible]
DRIVER'S LICENSE NO.:
AUTO LIC. PLATE NO.:
ORDER TAKEN BY: BW
CITY: [illegible] STATE: [illegible]
MONTH: 11 DAY: 13 YEAR: 75
TBI CREDIT NO.:
JOB FINISHED BY: 2

YEAR: 1957 MAKE: Ford MODEL: RESALE NO.:
OVER COUNTER PUR. ORD. NO.:

CASH	CHECK	M/C	MISC. SOLD B of A	1st NAT.	BIAL	MIDAS	REC'D ON ACCT. CASH	CHECK

ITEM		QUAN.	PART NO.	DESCRIPTION	UNIT PRICE	AMOUNT
MUFFLER	R	1	474			19.19
	L	1	474			19.19
RESONATOR	R					
	L					
CONNECTOR PIPE	R P					
	R R					
	L P					
	L R					
TAILPIPE	R	1	T-3444			14.16
	L					
EXHAUST PIPE	R P					
	R R	1	E 3409	6'		10.46
	L P			1½		
	L R					
CLAMPS		4	2"			3.40
BRACKETS						
EXTENSIONS						
GASKETS						
SHOCK ABSORBERS	F					
	R					
HEAT VALVE						
P. C. V. DEVICE						

ESTIMATE OF REPAIRS

PARTS TOTAL	66.30
SALES TAX	3.90
LABOR TOTAL ★	25.00
SERVICE CHARGE	
ESTIMATE TOTAL	95.20

WORK AUTHORIZATION

I hereby authorize the repair work to be done. You and your employees may operate vehicle for purposes of testing, inspection or delivery at my risk. An express mechanic's lien is acknowledged on above vehicle to secure the amount of repairs thereto. You are not to be held responsible for loss or damage to vehicle or articles left in vehicle in case of fire, theft, accident or any other cause beyond your control. I also acknowledge receipt of a copy of this work authorization and estimate of repairs.

X [illegible]
Customer's Signature

RETURN PARTS? YES ☐ NO ☒

Additional Authorized Amounts

$ _____
X _____
Customer's Signature

$ _____
X _____
Customer's Signature

LABOR	
TAILPIPES	
EXHAUST PIPES	
HEAT VALVE	
P. C. V. INSP.	
LABOR TOTAL ★	

Collected By: X BW

ADDITIONAL REPAIRS NEEDED

PARTS TOTAL	66.30
SALES TAX	3.90
LABOR TOTAL ★	25.00
SERVICE CHARGE	
TOTAL	95.20

ESTIMATE ONLY - NOT A RECEIPT

16-B

Substitute page from Manual

16-C

EMPLOYMENT APPLICATION

1. NAME (Last) (First) (Middle)

2. ADDRESS (Number, Street, City, Zip Code)

3. TELEPHONES
Home _____
Business _____

Length of Time at Current Address | Time at Previous Address

QUESTIONS 4 THROUGH 10 MUST BE ANSWERED *YES* OR *NO*

	YES	NO
4. Do you have a valid California Drivers License?		
5. Do you claim Veteran's Preference? If *Yes*, complete the following and submit copy of DD214 with application. (Veteran's Preference is applicable to entry level positions only.) SERVICE DATES From _____ To _____ **NOTE:** To receive credit you must have served at least 30 days in the United States Armed Forces in time of war, or national emergency declared by the President of the United States of America, and have been discharged or released under conditions other than dishonorable.		
6. May we contact your present employer as to your qualifications, character and ability?		
7. Have you ever been dismissed from employment or resigned to avoid dismissal for misconduct or unsatisfactory service? (If *Yes*, give details in Question 11)		
8. Have you ever received Workmen's Compensation? (If *Yes*, describe in Question 11)		
9. Have you any disease, nervous disorder, physical disability or infirmity? (If *Yes*, describe in Question 11)		
10. Have you been hospitalized for any reason in the past five years? (If *Yes*, describe in Question 11)		

11. Explanations to questions 7 through 10 (Use additional sheets of paper, if necessary.)

12 EDUCATIONAL RECORD

Circle Highest Grade Completed: 6 7 8 9 10 11 12 | Name and Location of Last Elementary or High School | Graduated? Yes ☐ No ☐

Name and Location of College or University | Major | Credits or Degree

List any related business, trade, special training (give location and dates), estimated typing and shorthand speeds, San Mateo County typing and/or shorthand certificates (give certificate number and date), location of college placement file, and other related information as applicable.

13. EMPLOYMENT INFORMATION

(Begin with your present employment and work back. Account for all time during the past ten years, including periods of unemployment. In addition, please describe any other related work experience, including volunteer work. Use additional sheets if more space is required.)

Present or Last Position

Employer _____
Address _____
Supervisor's Name & Title _____ Phone _____
Your Title _____
Duties _____

From _____ mo. _____ year
To _____ mo. _____ year
Total _____ years _____ months
Full Time ☐ Part Time ☐
Last Salary _____
Reason for leaving _____

Employer _____
Address _____
Supervisor's Name & Title _____ Phone _____
Your Title _____
Duties _____

From _____ mo. _____ year
To _____ mo. _____ year
Total _____ years _____ months
Full Time ☐ Part Time ☐
Last Salary _____

14. PERSONAL REFERENCES GIVE THREE (Do not include previous employers or relatives.)

NAME	ADDRESS	PHONE NUMBER

A.C.E. COMPETENCY BASED JOB DESCRIPTION 17

OCCUPATIONAL TITLE: GARAGE MECHANIC

INSTRUCTIONAL OBJECTIVES JOB COMPETENCIES

COMPETENCY BASED JOB DESCRIPTION FACT SHEET

FACT SHEET

OCCUPATIONAL TITLE: Garage Mechanic

DOT CODE: 620.281 (4th Ed.: 610.261-010)

ACE NUMBER: 17

CAREER LADDER

FIRST LEVEL

Garage Mechanic

SECOND LEVEL

Supervisor (in larger garage)

THIRD LEVEL

Manager/Owner

D.O.T.'s General Educational Level: 3

SITE WHERE THE JOB CAN BE OBSERVED

V & J Auto Service, Inc.
2633 El Camino Real
Redwood City, Calif.

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The activity which is the subject of this report was supported in whole or in part by the U.S. Office of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U.S. Office of Education, and no official endorsement by the U.S. Office of Education should be inferred.

Number of Annual Jobs in San Mateo County in 1976 15. This number is based upon the San Francisco-Oakland SMSA, U.S. Census Manpower projections and the quarterly employment security applicant record system reports on local San Mateo County Employment Development job opening activity.

JOB PREREQUISITES: Application form, interview. (previous experience and/or mechanical knowledge needed).

JOB DESCRIPTION: Repairs and overhauls automobiles, buses, trucks, and other automotive vehicles: Examines vehicle and discusses with customer or AUTOMOBILE-REPAIR-SERVICE SALESMAN; AUTOMOBILE TESTER; or BUS INSPECTOR nature and extent of damage or malfunction. Plans work procedure, using charts, technical manuals, and experience. Raises vehicle, using hydraulic jack or hoist, to gain access to mechanical units bolted to underside of vehicle. Removes unit, such as engine, transmission, or differential, using wrenches and hoist. Disassembles unit and inspects parts for wear, using micrometers, calipers, and thickness gages. Repairs or replaces parts such as pistons, rods, gears, valves, and bearings, using mechanic's handtools. Overhauls or replaces carburetors, blowers, generators, distributors, starters, and pumps. Rebuilds parts, such as crankshafts and cylinder blocks, using lathes, shapers, drill presses, and welding equipment. Rewires ignition system, lights and instrument panel. Relines and adjusts brakes, aligns front end, repairs or replaces shock absorbers, and solders leaks in radiator. Mends damaged body and fenders by hammering out or filling in dents and welding broken parts. Replaces and adjusts headlights, and installs and repairs accessories, such as radios, heaters, mirrors, and windshield wipers. May be designated according to specialty as AUTOMOBILE MECHANIC, MOTOR; BUS MECHANIC; DIFFERENTIAL REPAIRMAN; ENGINE-REPAIR MECHANIC, BUS; FOREIGN-CAR MECHANIC; TRUCK MECHANIC.

THE ACADEMIC REQUIREMENTS FOR THE JOB OF
GARAGE MECHANIC

Below are listed first in general terms and then in specific competencies the math and communication activities which a person must typically be able to carry out to function successfully as a garage mechanic.

The right hand column lists the exact competencies found to have been essential to the job in our on-site employee interview. This column also notes the skills which are prerequisite to those competencies.

The left hand column* states the skill in more general language. The controlled language of this column permits comparison of skills between occupations.

* The items in the left hand column have been abstracted from an abbreviated version of the taxonomy of generic skills developed by Kavula, W. and Smith, A. DeW., Generic Skills Handbook of Occupational Information, Training Research and Development Station, Prince Albert, Saskatchewan, 1975.

1A.1 The GARAGE MECHANIC must be able to read numbers on work orders and parts orders and be able to copy them on a work summary.

To accomplish this task, the student must be able to read and copy whole numbers.

To demonstrate the ability to perform this task, the student will copy the following numbers:

4760 4089 1931 1876

1A.2 Prerequisite to 1A.5

Identify place value of digits in a given whole number with up to seven digits.

1A.3 Prerequisite to 1A.5

Read a given whole number less than ten million and write its name in words.

1A.4 Prerequisite to 1A.5

Write a whole number less than ten million, given the word name of the number.

1A.5 The GARAGE MECHANIC must be able to keep track of how many parts are used to perform a job.

To accomplish this task, the student must be able to count screws, nuts, and bolts.

To demonstrate the ability to perform this task, the student will count the number of pencils placed on a desk by the instructor.

1B.1 Prerequisite to 1B.5

Perform addition of whole numbers, given instructions such as:

What is the total of 8 and 5? 8 + 5 = _____;
8 plus 5 is _____.
Find the sum of 8 and 5.
Add 8 and 5.

$$\begin{array}{r} 8 \\ +5 \\ \hline \end{array}$$

1B.2 Prerequisite to 1B.5

Find the sum of a set of whole numbers of 105 digits including cases where carrying is required.

1B.3 Prerequisite to 1B.5

Perform subtraction of whole numbers given instructions such as:

8 minus 5 is _____;
Subtract 5 from 8;
Find the difference of 8 and 5;

If you had 8 and gave away 5, you would have _____;

$$\begin{array}{r} 8 \\ -5 \\ \hline \end{array}$$

1B.4 Prerequisite to 1B.5

Find the difference of two 1-5 digit numbers including cases where borrowing is required.

1B.5 The GARAGE MECHANIC must be able to keep track of parts used.

To accomplish this task, the student must be able to subtract numbers of parts used from the total number of parts.

To demonstrate the ability to perform this task, the student will determine that if he started out with 20 lug nuts and he has used 15, he should have 5 left.

1C.1 Prerequisite to 1C.5

Perform multiplication of whole numbers given instructions such as:

6 times 2 is _____;
Six two's are _____;
The product of 6 and 2 is _____;

$6 \times 2 = _____$;

$$\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$$

1C.2 Prerequisite to 1C.5

Find the product of a given pair of whole numbers of which one number is up to five digits and the other number up to three digits.

1C.3 Prerequisite to 1C.5

Perform dividion of two simple whole numbers (no remainder) given instructions such as:

6 divided by 2 is _____
2 into 6 goes _____ times;
The quotient of 6 divided by 2 is _____;

$6 \div 2 = _____$;

$2\overline{)6} = _____$;

$\frac{6}{2} = _____$.

1C.4 Prerequisite to 1C.5

Find quotients of 1-5 digit dividends and 1-3 digit divisors including cases where there are remainders.

1C.5 The GARAGE MECHANIC must be able to calculate revolution per minute of the crankshaft.

To accomplish this task, the student must be able to solve a word problem involving division.

To demonstrate the ability to perform this task, the student will calculate that if a crankshaft turns 72,000 times in 15 minutes, it is turning at 4800 revolutions per minute.

2A.2 Prerequisite to 2A.5

Reduce a fraction to its simplest form (lowest terms).

2A.3 Prerequisite to 2A.5

Change improper fraction to mixed numbers and mixed numbers to improper fractions.

2A.4 Prerequisite to 2A.5

Write equivalent fractions for a given fraction given a new numerator and denominator.

2A.5 The GARAGE MECHANIC must be able to determine the sizes of drills or other tools whose sizes are measured as fractions.

To accomplish this task, the student must be able to arrange a set of fractions in ascending or descending order.

To demonstrate the ability to perform this task, the student will read the following fractions and arrange them in ascending order:

$\frac{1}{64}, \frac{9}{32}, \frac{25}{64}, \frac{13}{32}, \frac{1}{8}, \frac{1}{16}$

2C.1 Prerequisite to 2C.6

Calculate the product in simplest form of:

a. a common fraction and a whole number;
b. two common fractions.

2C.2 Prerequisite to 2C.6

Calculate the product in simplest form of:

a. a mixed number and a whole number;
b. two mixed numbers.

2C.3 Prerequisite to 2C.6

Calculate: the product in simplest form of two or three numbers which include at least one common fraction and one mixed number.

2C.4 Prerequisite to 2C.6

Calculate the quotient in simplest form of:

a. a common fraction divided by a whole number;
b. two common fractions;
c. a whole number divided by a common fraction.

2C.5 Prerequisite to 2C.6

Calculate the quotient in simplest form of:

a. a mixed number divided by a whole number and vice versa;
b. a mixed number divided by a common fraction and vice versa;
c. two mixed numbers.

2C.6 The GARAGE MECHANIC must be able to calculate the amount of supplies needed for a job and the amount of supplies remaining.

To accomplish this task, the student must be able to multiply and divide fractions.

To demonstrate the ability to perform this task, the student will determine that if he fills the brakes of three cars with 3/4 of a pint of brake fluid each he has used 2 1/4 pints.

3A.1 Prerequisite to 3A.3

Read a given 1-4 place decimal fraction and write its name in words.

3A.2 Prerequisite to 3A.3

Write a 1-4 place decimal fraction given the word name of the number.

3A.3 The GARAGE MECHANIC must be able to work with tolerances.

To accomplish this task, the student must be able to determine whether one decimal fraction is greater than another.

To demonstrate the ability to perform this task, the student will rank the following decimals in ascending order:

.1, .025, .2, .25, .7, .07, .005.

3B.1 Prequisite to 3B.3

Calculate the sum of a set of decimal fractions.

3B.2 Prerequisite to 3B.3

Calculate the difference of two decimal fractions.

3B.3 The GARAGE MECHANIC must be able to test drive an automobile and record the number of miles tested using the odometer.

To accomplish this task, the student must be able to solve problems involving the difference of two decimals.

To demonstrate the ability to perform this task, the student will determine that if the original mileage was 35074.8 and the mileage after the test was 35089.1, then the total test mileage was 14.3 miles.

3C.1 Prerequisite to 6H.1

Calculate the product of two decimal fractions when rounding is (a) required, and (b) not required.

3C.2 Prerequisite to 6H.1

State or write the product of a number and a power of ten between .001 and 1,000 without written calculation.

3C.3 Prerequisite to 6H.1

Calculate to a given number of decimal places, the quotient of a <u>whole number</u> divided into:

a. a whole number larger than the divisor;
b. a whole number smaller than the divisor;
c. a decimal fraction.

3C.4 Prerequisite to 6H.1

Calculate to a given number of decimal places, the quotient of a <u>decimal fraction divided into</u>:

a. a decimal fraction;
b. a whole number.

3C.5 Prerequisite to 6H.1

State or write the quotient of a number divided by a power of ten between .001 and 1000 without written calculation.

3C.6 Prerequisite to 6H.1

Solve a routine word problem using multiplication and/or division of decimals.

3E.5 Prerequisite to 6H.1

Calculate the total cost of up to twenty-five items of equal value.

3F.1 Prerequisite to 6H.1

Use addition, subtraction, multiplication or division, as appropriate, in the solution of problems involving a combination of two or more functions with decimal fractions.

5C.1 The GARAGE MECHANIC must be able to check the compression ratio of an engine.

To accomplish this task, the student must be able to identify ratios as comparisons of two numbers.

To demonstrate the ability to perform this task, the student will write a compression ratio for an engine.
(Answer: 14:1 or 10:1 or etc.)

5C.2 Prerequisite to 5D.2

State or write in simplest form (lowest terms) a ratio of two numbers or items in the form:

a. a:b; b. $\frac{a}{b}$

5C.3 Prerequisite to 5D.2

Write a ratio, given a description of two numbers or items, one of which must be determined by addition or subtraction of the numbers in a given ratio.

5D.1 Prerequisite to 5D.2

Identify an equality of two ratios in the form of: $a:b = c:d$, $\frac{a}{b} = \frac{c}{d}$, "a is to b as c is to d", or "a parts to b parts is the same as c parts to d parts", etc., as a proportion.

5D.2 The GARAGE MECHANIC must be able to fill a radiator after working on it with the correct mixture of water and antifreeze.

To accomplish this task, the student must be able to figure the correct ratio of antifreeze to water.

To demonstrate the ability to perform this task, the student will determine that, if the ratio of antifreeze to water should be 1 to 5, and if the capacity of the radiator is 20 quarts, then 4 quarts of antifreeze are needed.

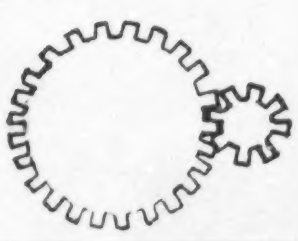
$$\frac{1}{5} = \frac{X}{20}$$

5D.3 Prerequisite to 5D.4

Calculate a number when a fraction of it is known, using the proportion method.

5D.4 The GARAGE MECHANIC must be able to work on parts of cars containing gears.

To accomplish this task, the student must be able to figure out the direction and number of revolutions of meshing gears.



To demonstrate the ability to perform this task, the student will determine that, in the gears (left), if the larger gear turns one revolution and has 3 times an many teeth as the smaller, then the smaller will make 3 complete turns:

$$\frac{3}{1} = \frac{24}{X}$$

6D.1 The GARAGE MECHANIC must be able to replace oil or transmission fluid after working on a car.

To accomplish this task, the student must be able to add and subtract units of liquid measure.

To demonstrate the ability to perform this task, the student will determine that, if the transmission holds 2 gallons and 2 quarts, and he has already put in 1 gallon and 3 quarts, then he must put in 3 more quarts to fill it:

2 gallons	2 quarts
- 1 gallon	3 quarts
	3 quarts

6G.5 Prerequisite to 6H.1

Multiply given units by time intervals (e.g., 3 people times 4 hours and 35 minutes).

6H.1 The GARAGE MECHANIC must be able to calculate total costs for labor.

In order to accomplish this task, the student must be able to calculate amounts per week, given the hours of work and rates.

To demonstrate the ability to perform this task, the student will determine that:

40 hours at $8.00 per hour = $320.00
18 hours at $6.00 per hour = $108.00
22 1/2 hours at $7.50 per hour = $168.75

8A.2 Prerequisite to 8A.5

Round off a number (including mixed numbers) to a given unit of precision.

8A.4 Prerequisite to 8A.5

Write the size of the interval between:

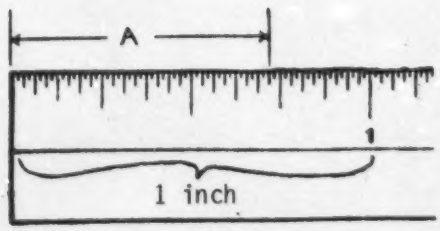
a. numerals on a graduated scale.
b. subdivisions on a graduated scale.

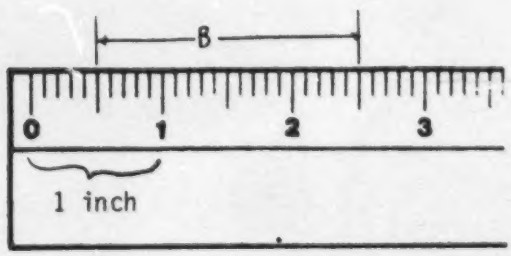
8A.5 The GARAGE MECHANIC must be able to measure cylinder diameters, tolerances of parts, or clearances between parts under the hood.

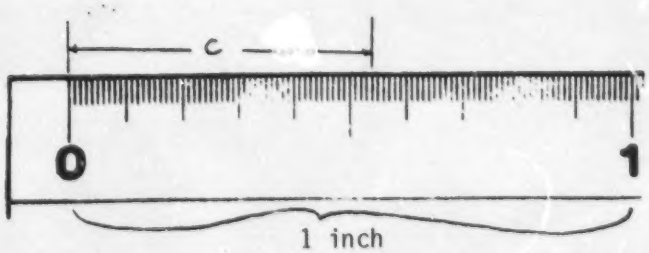
To accomplish this task, the student must be able to read graduated scales.

To demonstrate the ability to perform this task, the student will determine that the following measurements are correct:

Distance A = 23/32 of an inch
Distance B = 2 inches
Distance C = 54/100 of an inch





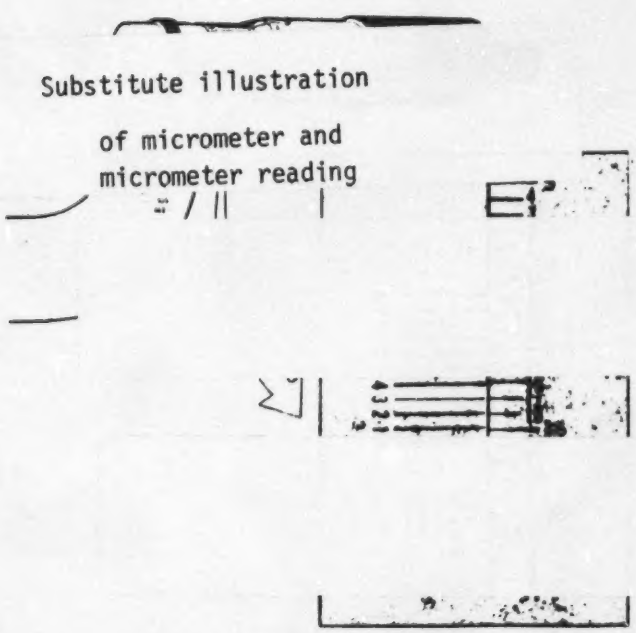


8A.6 The GARAGE MECHANIC must be able to measure tiny distances using precision devices such as calipers and micrometers.

To accomplish this task, the student must be able to interpret combinations of scales such as those of a micrometer.

To demonstrate the ability to perform this task, the student will read the simulated micrometer scale below and determine that it reads .2613 inches.

Substitute illustration of micrometer and micrometer reading



9A.1 Prerequisite to 9A.2

Identify millimeters, centimeters, decimeters, meters, decameters, hectometers, and kilometers as units of measure of metric distances.

9A.2 The GARAGE MECHANIC must be able to use the proper metric tools or measurements when working on foreign cars or engines.

To accomplish this task, the student must be able to identify metric measures and their relationships.

To demonstrate the ability to perform this task, the student will examine the meter stick below and determine that:

Distance A = 1 decimeter or 10 centimets or 100 millimeters.
Distance B = 1 millimeter or 1/10 of a centimeter or 1/100 of a decimeter.

9B.1 Prerequisite to 9B.2

Given tables, convert metric measurements of distance to English measurements.

9B.2 The GARAGE MECHANIC must be able to convert metric measures to English measures and vice versa.

To accomplish this task, the student must be able to read and interpret conversion charts.

To demonstrate the ability to perform this task, the student will examine the chart below and determine that:

a. 2 inches = 2x25 = 50 millimeters
b. 75 millimeters = .04 x 75 = 3 inches
c. 5 kilometers = 5 x .6 = 3 miles

	When you know:	You can find:	If you multiply by:
LENGTH	inches	millimeters	25
	feet	centimeters	30
	yards	meters	0.9
	miles	kilometers	1.6
	millimeters	inches	0.04
	centimeters	inches	0.4
	meters	yards	1.1
	kilometers	miles	0.6

9E.2 The GARAGE MECHANIC must be able to work with metric capacities of engines.

To accomplish this task, the student must be able to convert units of metric volume to other metric measures.

To demonstrate the ability to perform this task, the student will determine that a 5.4 liter engine contains 5400 cubic centimeters or 54,000 milliliters.

9F.1 Prerequisite to 9F.2

Given tables, convert metric measurements of capacity to English measurements.

9F.2 The GARAGE MECHANIC must be able to work with both English and metric units of quantity.

To accomplish this task, the student must be able to convert one measure into another.

To demonstrate the ability to perform this task, the student will use the table below and determine that:

a. 5 ounces = 5 x 30 = 150 milliliters
b. 2 liters = 2 x 2.1 = 4.2 pints
c. 10 pints = 10 x .47 = 4.7 liters
d. 5.4 liters = 5.4 x 1.06 = 5.724 quarts

Comparing the Commonest Measurement Units

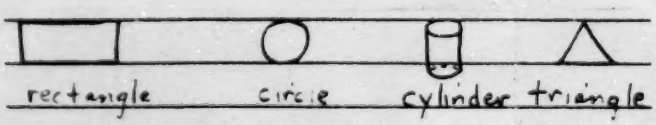
Approximate conversions from customary to metric and vice versa.

	When you know:	You can find:	If you multiply by:
LIQUID VOLUME	ounces	milliliters	30
	pints	liters	0.47
	quarts	liters	0.95
	gallons	liters	3.8
	milliliters	ounces	0.034
	liters	pints	2.1
	liters	quarts	1.06
	liters	gallons	0.26

11A.1 The GARAGE MECHANIC must be able to work with parts of many different shapes.

To accomplish this task, the student must be able to identify these shapes and recognize them from 20dimensional drawings.

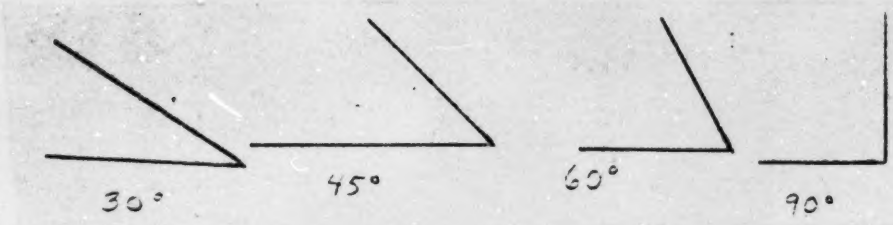
To demonstrate the ability to perform this task, the student will examine the figures below, identify them correctly, and point out an object in the classroom with a similar shape.



11B.1 The GARAGE MECHANIC must be able to use diagrams in manuals to aid in fitting parts together.

To accomplish this task, the student must be able to identify common angles.

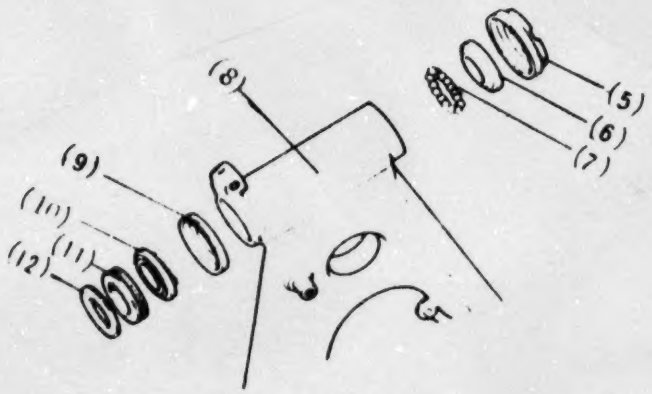
To demonstrate the ability to perform this task, the student will examine the four angles below and correctly identify them.



12D.1 The GARAGE MECHANIC must be able to assemble replacement or additional equipment parts.

To accomplish this task, the student must be able to read assembly drawings.

To demonstrate the ability to perform this task, the student will show to the instructor, part by part, the order in which the parts in the following assembly drawing are to be put together.

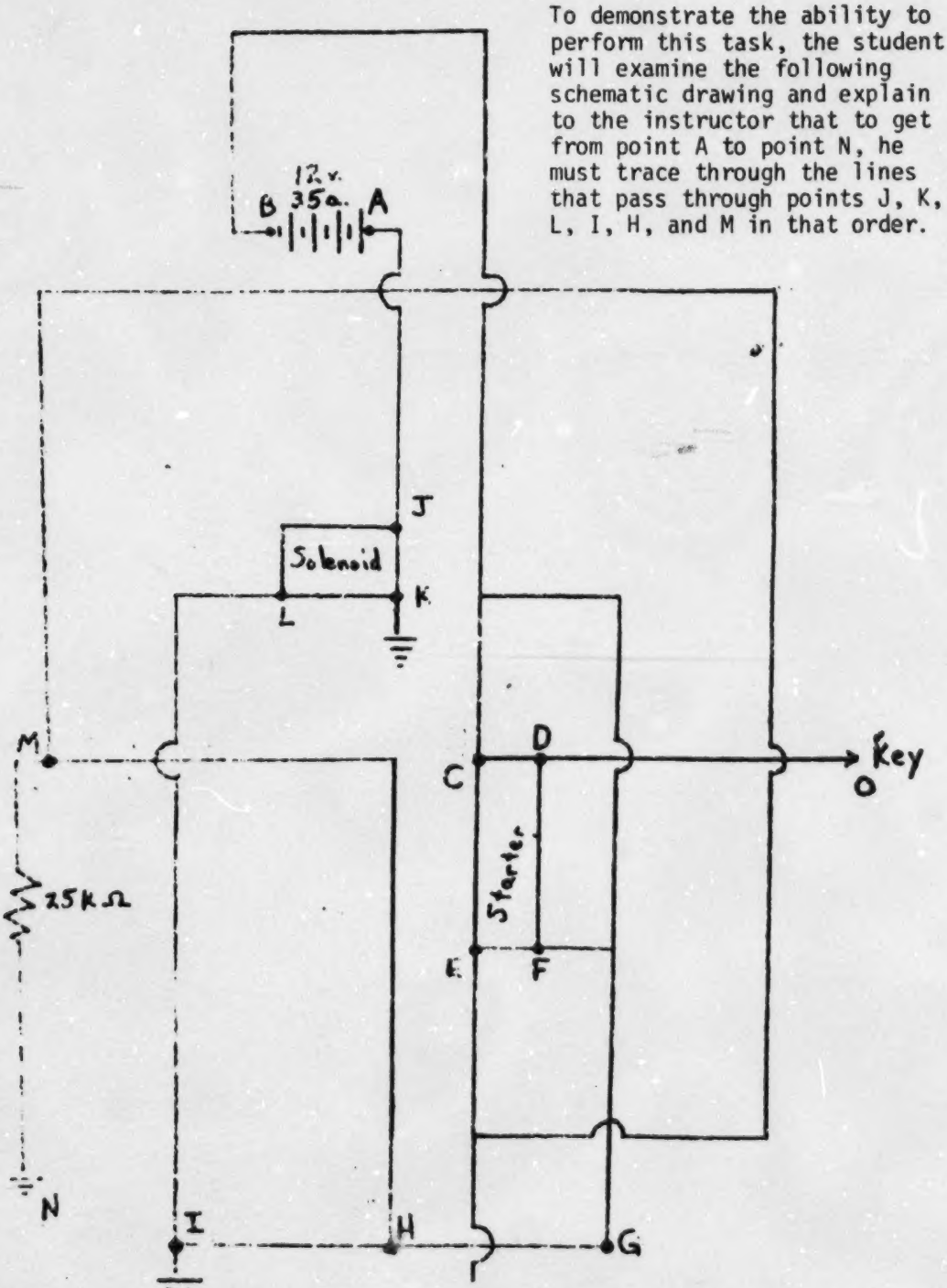


Assembly Drawing

12E.1 The GARAGE MECHANIC must be able to work on the electrical system of cars and trucks.

To accomplish this task, the student must be able to read and trace through schematic drawings.

To demonstrate the ability to perform this task, the student will examine the following schematic drawing and explain to the instructor that to get from point A to point N, he must trace through the lines that pass through points J, K, L, I, H, and M in that order.



13A.1 The GARAGE MECHANIC must be able to install the correct parts on a job.

To accomplish this task, the student must be able to distinguish between letters in different part numbers.

To demonstrate the ability to perform this task, the student will examine the parts numbers below and read them to the instructor:

113 611 723G
113 611 763B
113 611 763D
113 612 475J

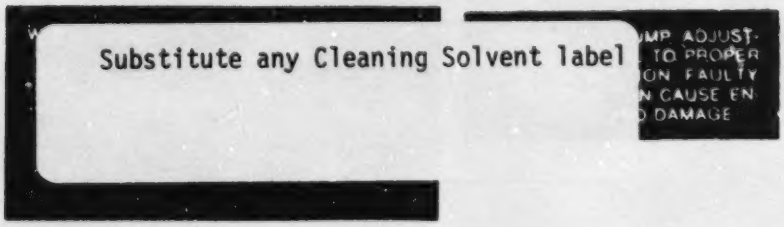
15A.1 Prerequisite to 15A.2

Read a list of 50 words from a series of commonly used terms (e.g., from the Dolch List).

15A.2 The GARAGE MECHANIC must be able to use a variety of products in servicing cars.

To accomplish this task, the student must be able to read the labels and accompanying instructions of these products.

To demonstrate the ability to perform this task, the student will read the following directions and explain that the first is warning about the danger of gasoline fires, and the second tells the danger of improper adjustment of the oil pump.



15A.3 The GARAGE MECHANIC must be able to explain what he does to cars and to receive advice from his fellow workers.

To accomplish this task, the student must be able to use and understand words which are common to automobiles and garages.

To demonstrate the ability to perform this task, the student will match the following words with the correct definitions:

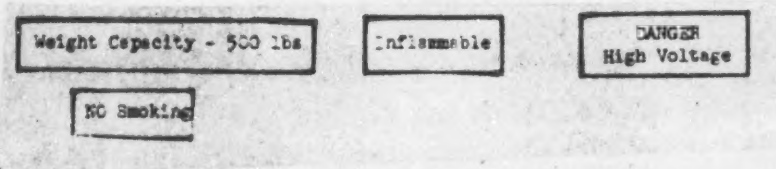
1. generator	A. a device which distributes electric current to spark plugs
2. ohmmeter	B. a device for producing electricity from the rotary motion of the crankshaft
3. align	C. a wrench with a scale on it for determining the tightness of bolts and other fasteners
4. torque wrench	D. a device for measuring electrical resistance
5. feeler gages	E. to bring the wheels of a car into proper coordination
6. ignition coil	F. a device for increasing the voltage from the battery in order to start the car
7. carburetor	G. a machine which is used to raise a motor or other heavy object
8. hydraulics	H. a device in which air is mixed with gasoline spray to make an explosive mixture in an internal-combustion engine
9. radiator	I. thin fingers of metal of different thicknesses used to measure tolerances and gaps between objects
10. hoist	J. describing a system where fluid is used to increase the amount of force in a piston
11. distributor	K. a finned container of water which cools the engine of a car

Key: 1 B, 2 D, 3 E, 4 C, 5 I, 6 F, 7 H, 8 J, 9 K, 10 G, 11 A

15B.1 The GARAGE MECHANIC must be able to observe safe working habits.

To accomplish this task, the student must be able to read and understand common safety signs.

To demonstrate the ability to perform this task, the student will read the signs below and briefly explain their meaning to the instructor:



16A.2 The GARAGE MECHANIC must be able to read work orders so that he knows what work is to be done.

To accomplish this task, the student must be able to read terms and abbreviations on these forms.

To demonstrate the ability to perform this task, the student will read the form 17-C and determine that QUAN. means quantity, mileage is the number of miles shown on the odometer, the abbreviation "No." means number, and that the symbol "@" stands for each or apiece.

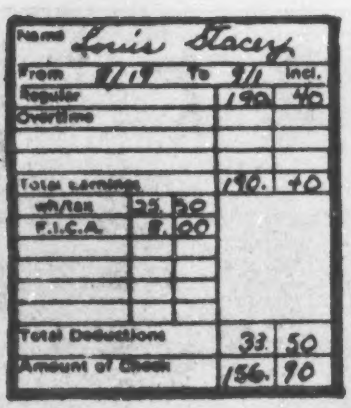
16A.3 Prerequisite to 16A.4

Identify various kinds of forms by stating the kind of information to be recorded.

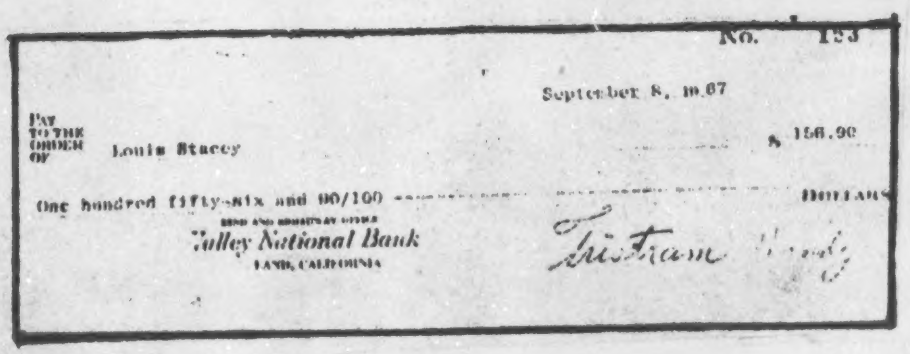
16A.4 The GARAGE MECHANIC receives and must be able to verify his paycheck.

To accomplish this task, the student must be able to answer factual questions about his paycheck.

To demonstrate the ability to perform this task, the student will examine the paycheck below and determine from the pay stub that Louis Stacey earned $190.40 gross pay, that $25.50 was withheld for Federal Income Tax, $8 for Social Security Tax, and that his net pay was $156.90.



Name Louis Stacey			
From 8/15	To 9/1		Incl.
Regular		190.	40
Overtime			
Total Earnings		190.	40
w/tax	25.	50	
F.I.C.A.	8.	00	
Total Deductions		33.	50
Amount of Check		156.	90



No. 153

September 8, 19 67

Pay TO THE ORDER OF Louis Stacey $ 156.90

One hundred fifty-six and 90/100 ---------- DOLLARS

Valley National Bank
LAND, CALIFORNIA

Gustrom

19A.1 Prerequisite to 19A.3

Identify the correct meanings of words that sound similar but are different in meaning.

19A.2 Prerequisite to 19A.3

Provide words which fit the context of given sentences.

19A.3 The GARAGE MECHANIC must be able to understand instructions in order to do a job correctly and efficiently.

To accomplish this task, the student must be able to interpret the meanings of words using the context.

To demonstrate the ability to perform this task, the student will tell the instructor the meanings of the following underlined words in the sentences below:

a. If the contacts are misaligned, the distributor contacts will not meet the rotor.
b. The ballast resistor lowers the current when it is high, and raises the current when it is low.
c. If the brake system needs bleeding, one must remove all of the air bubbles from it.

19A.4 The GARAGE MECHANIC must be able to take specific orders, instructions, and make independent judgements about the appropriateness of an activity.

To accomplish this task, the student must be able to state the main idea of a given speech.

To demonstrate the ability to perform this task, the student will decide that the main idea of the following oral passage is "the advantage of the air signs":

1. In a few years signs will pop out of the air without boards or posts to hold them. Different messages will be projected to drivers in different lanes -and as the drivers reach the point where the sign appears to be, it will vanish. This new type of sign, a screenless, mid-air image, eliminates the need for posts. Each lane of traffic sees only the messages directed to it. Perhaps even more important, the messages are easy to read in rain, snow, bright sunlight, and darkness.

19A.10 The GARAGE MECHANIC must be able to answer questions about jobs done by co-workers.

To accomplish this task, the student must be able to answer questions from oral information.

To demonstrate the ability to perform this task, the student will answer the following questions based on the paragraph below to be read orally by the instructor.

Q. What are two causes of abnormal tire wear patterns?
A. Overinflation and underinflation

Q. Where does the tire wear in each case?
A. Center/shoulders, respectively.

Underinflation
For the maximum results in stability and handling ride quality and tire life, tire inflation pressures should not be allowed to go below the recommended inflation pressures. When a tire is under inflated, this results in much faster wear of the shoulders than the center of tread.

Overinflation
When tire inflation pressures are maintained within the specifications the tire will wear evenly over the entire tread. A tire that is overinflated wears much faster in the center of the tread.

19A.15 The GARAGE MECHANIC must be able to perform tasks given him by a supervisor.

To accomplish this task, the student must be able to follow oral directions.

To demonstrate the ability to perform this task, the student will listen to the following instructions and then proceed to do them:

a. Remove all the pencils from the jar on the table.
b. Divide them into two equal groups.
c. If there is a pencil left over from the two groups, leave it on the table and replace the two groups in the jar.

16B.3 The GARAGE MECHANIC must be able to read a parts list in order to ensure that he gets the right part.

To accomplish this task, the student must be able to answer questions based on charts and tables.

To demonstrate the ability to perform this task, the student will examine appendix 17-B parts list and write the reference number of the two choke units appropriate for use in a series model 1200, 40 HP vehicle.

16D.3 Prerequisite to 16D.4

Identify the parts of a given manual which apply to a given situation using the table of contents and/or index as guide.

16D.4 The GARAGE MECHANIC must be able to locate information in service manuals.

To accomplish this task, the student must be able to use the table of contents and/or index to find sections or pages of the manual containing the desired information.

To demonstrate the ability to perform this task, the student will determine by using appendix 17-D that the Car Service Procedure for a 1952 Buick's Cooling System is on pages 343,344.

16D.5 The GARAGE MECHANIC must be able to follow directions specified in technical service manuals of bulletins so that he can make repairs given an oral statement of the problem from the customer.

To accomplish this task, the student must be able to read a service manual.

To demonstrate the ability to perform this task, the student will read the paragraphs below and explain to the instructor the four different problems with brakes and their causes.

[illegible] Brakes

Substitute trouble shooting section of any manual

loose hold down springs, grease on the lining.

pull may be caused by [illegible] broken retracting springs [illegible]

17A.1 Prerequisite to 17A.3

Select appropriate titles for paragraphs, given a list of titles.

17A.2 Prerequisite to 17A.3

Match a given list of main ideas to appropriate paragraphs.

17A.3 The GARAGE MECHANIC must be able to understand the gist of sections of service manuals.

To accomplish this task, the student must be able to pick out the main ideas expressed by sections of the manual.

Substitute trouble shooting section of any manual

[illegible] indicates that current is flowing. A glance at the gas gauge will [illegible] whether or not [illegible]

To demonstrate the ability to perform this task, the student will read the paragraph on left and determine that the main idea is how to figure out systematically why a car will not start.

[illegible] exposed

22A.1 Prerequisite to 22H.1

Given simple data in the form of words and figures, write phrases on forms which are legible and which convey the desired information.

22B.1 Prerequisite to 22H.1

Given simple data in the form of words and figures, write complete sentences on forms which are legible and which convey the required information.

22B.2 The GARAGE MECHANIC must be able to apply for a job.

To accomplish this task, the student must be able to fill out an application for employment.

To demonstrate the ability to perform this task, the student will complete form 17-A.

22H.1 The GARAGE MECHANIC must be able to fill out a repair order form.

To accomplish this task, the student must be able to write phrases and numbers in the appropriate portions of the form, given the necessary data in words and figures.

To demonstrate the ability to perform this task, the student will accurately and legibly complete form 17-E given the following information:

On August 22, 1976, Mr. Grey brought in his 1973 Datsun 1200. In addition to a change of oil and a lube job ($2.75) he wished to have his tires rotated and have a new spare tire placed in his trunk. He also wished to have a squeak in his steering column checked and his window washer bottle refilled. The car required 3 quarts of oil, catalogue #415, at 75¢ each. The tire, #906B.4, sold for $25.95. The estimated labor time was 2 hours (at $15 an hour) as expected, so Mr. Grey was able to pick up his car at 4:30 pm as promised.

17-A

EMPLOYMENT APPLICATION

1. NAME (Last) (First) (Middle)

2. ADDRESS (Number, Street, City, Zip Code) | 3. TELEPHONES Home ____ Business ____

Length of Time at Current Address | Time at Previous Address

QUESTIONS 4 THROUGH 10 MUST BE ANSWERED *YES* OR *NO*

	YES	NO
4. Do you have a valid California Drivers License?		
5. Do you claim Veteran's Preference? If *Yes*, complete the following and submit copy of DD214 with application. (Veteran's Preference is applicable to entry level positions, only.) SERVICE DATES From ____ To ____ **NOTE:** To receive credit you must have served at least 30 days in the United States Armed Forces in time of war, or national emergency declared by the President of the United States of America, and have been discharged or released under conditions other than dishonorable.		
6. May we contact your present employer as to your qualifications, character and ability?		
7. Have you ever been dismissed from employment or resigned to avoid dismissal for misconduct or unsatisfactory service? (If *Yes*, give details in Question 11)		
8. Have you ever received Workman's Compensation? (If *Yes*, describe in Question 11)		
9. Have you any disease, nervous disorder, physical disability or infirmity? (If *Yes*, describe in Question 11)		
10. Have you been hospitalized for any reason in the past five years? (If *Yes*, describe in Question 11)		

11 Explanations to questions 7 through 10 (Use additional sheets of paper, if necessary.)

12 EDUCATIONAL RECORD

Circle Highest Grade Completed 8 7 8 9 10 11 12 | Name and Location of Last Elementary or High School | Graduated? Yes ☐ No ☐

Name and Location of College or University | Major | Credits or Degree

List any related business, trade, special training (give location and dates); estimated typing and shorthand speeds; San Mateo County typing and/or shorthand certificates (give certificate number and date); location of college placement file; and other related information as applicable.

13. EMPLOYMENT INFORMATION

(Begin with your present employment and work back. Account for all time during the past ten years, including periods of unemployment. In addition, please describe any other related work experience, including volunteer work. Use additional sheets if more space is required.)

Present or Last Position

Employer ____ From ____ mo. ____ year

Address ____ To ____ mo. ____ year

Supervisor's Name & Title ____ Phone ____ Total ____ years ____ months

Your Title ____ Full Time ☐ Part Time ☐

Duties ____ Last Salary ____

Reason for leaving ____

Employer ____ From ____ mo. ____ year

Address ____ To ____ mo. ____ year

Supervisor's Name & Title ____ Phone ____ Total ____ years ____ months

Your Title ____ Full Time ☐ Part Time ☐

Duties ____ Last Salary ____

14. PERSONAL REFERENCES - GIVE THREE (Do not include previous employers or relatives.)

NAME	ADDRESS	PHONE NUMBER

17-B

REFERENCE NUMBER	DESCRIPTION	MODEL			
		1200 36 H.P.	1200 40 H.P.	1300 50 H.P.	1500 53 H.P.
888 067 152	Carburetor 15ABC Up to Engine No. 4 806 219	X			
818 067 524Y	Carburetor 15AYBT-4		X		
285 067 152M	Carburetor 17AYBT-4			X	
885 067 152D	Carburetor 17AYBT-4 Up to Engine No. A 138 907			X	
818 067 152X	Carburetor 17AYBT-4			X	
885 067 154E	Carburetor 17AYBT-4				X
885 067 154G	Carburetor 17AYBT-6				X
888 067 838T	Set screw - Carburetor	X			
888 067 832T	Bush - Set screw	X			
888 067 837	Nut, hex. - Set screw	X			
888 067 878	Choke unit w/spring and heating element 15AYBT		X		
885 067 878F	Choke unit w/spring and heating element 15AYBT-4		X		
885 067 878S	Choke unit w/spring and heating element			X	
885 067 878M	Choke unit w/spring and heating element 12V up to Engine No. G 1 428 066				X
885 067 878B	Choke unit w/spring and heating element 12V				X
888 067 618	Needle valve 1.5mm dia.	X	X	X	X
888 067 615	Sealing washer - Needle valve	X	X	X	X

17-C

AUTO SERVICE INC.

USED CARS
Phone: 001-1234
Our Town, California

Nº 0001

Name _____ Date _____ 19____
Address _____ Phone No. _____
City _____ State _____ Zip No _____

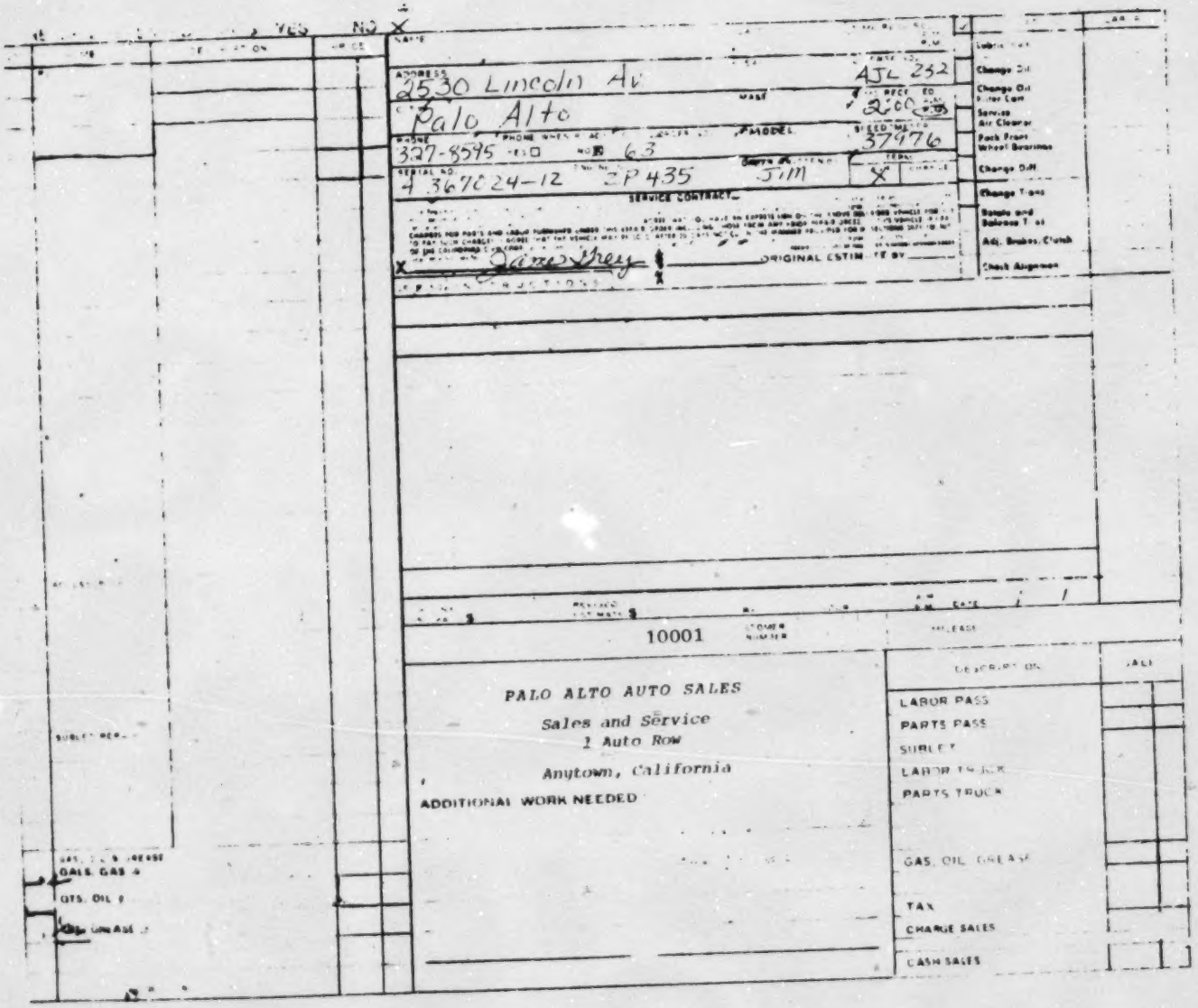
MAKE & MODEL	LICENSE No. & STATE	MOTOR No.	SERIAL No.	MILEAGE

QUAN.	PART No.	ARTICLE	PRICE

17-D

Substitute page from any catalog

17-E


YES
NO X
2530 Lincoln Av
Palo Alto
327-8575
63
37976
AJL 232
2.00
Jim
X
SERVICE CONTRACT
ORIGINAL ESTIM
Change Oil
Change Oil Filter Cart
Service Air Cleaner
Pack Front Wheel Bearings
Change Diff.
Change Trans.
Adj. Brakes, Clutch
Check Alignment
10001
PALO ALTO AUTO SALES
Sales and Service
1 Auto Row
Anytown, California
ADDITIONAL WORK NEEDED
LABOR PASS
PARTS PASS
SUBLET
LABOR TRUCK
PARTS TRUCK
GAS, OIL, GREASE
TAX
CHARGE SALES
CASH SALES
GALS. GAS
QTS. OIL